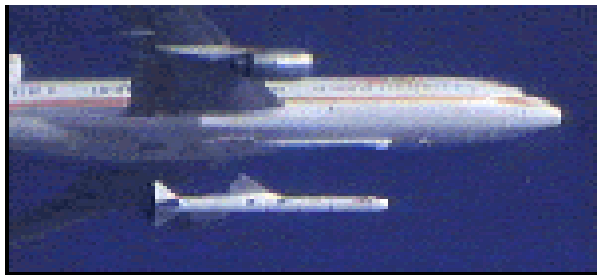


Pardon the Interruption
Meeting
April 2008

LRO-LCROSS / LCROSS Project Summary

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Mission	LRO-LCROSS / LCROSS
Launch Date	2008/10/28
Launch Vehicle	Atlas V
Launch Period Window	0
PPF	ASO-KSC

OVERALL MISSION

Feb	Mar	Apr
Y	Y	Y

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	G
Manifest/Range	G	Y	Y
Integrated Schedule	G	G	Y
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	0	0	0

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	Y	Y	Y
Safety	Y	Y	Y
Quality	Y	G	G
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	Y	Y	Y
Mission Specific	Y	Y	Y
Certification	N/A	N/A	0
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	G	G	G

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	G	G	G
Deployables	0	N/A	0
P-3/OTTR	0	N/A	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

Sensitive But Unclassified

LCROSS Project Summary

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Mission	LCROSS
Launch Date	2008/10/28
Launch Vehicle	Atlas V
Launch Period Window	0
PPF	ASO-KSC

OVERALL MISSION

Feb	Mar	Apr
G	Y	Y

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	Y
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	Y	Y
Launch Site Unique	G	G	G
Spacecraft OPS	0	0	0

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	0	0	0
Safety	0	0	0
Quality	0	0	0
Reliability	0	0	0

ENGINEERING			
Launch Vehicle	0	0	0
Mission Specific	0	0	0
Certification	0	0	0
Mission Analysis	0	0	0
ERS/ERB	0	0	0
Launch PAD/GSE	0	0	0
Mission Unique IV&V	0	0	0

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	0	G

DOWNRANGE TELEMETRY			
Ground Stations	G	G	G
Deployables	0	0	0
P-3/OTTR	0	0	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

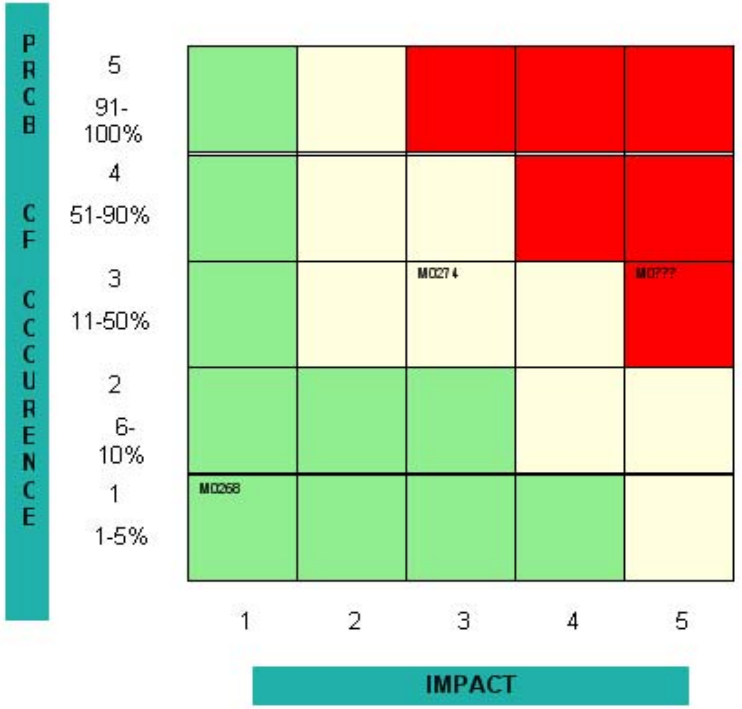
Sensitive But Unclassified

LRO-LCROSS / LCROSS - Open/Accepted Risks

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
G	M0268	Condition: The LRO and LCROSS spacecraft have different risk classes (LRO-Class B and LCROSS-Class D) and as a result have different (dissimilar) test requirements. The loads model dynamic uncertainty factor (DUF) for the verification loads cycle for the combined spacecraft stack including launch vehicle elements will have to be agreed upon by four parties (LCROSS, LRO, ULA, and LSP).
		Consequence: May lead one party, in this case LRO, to accept more risk (higher DUF) than they would have if they were flying without LCROSS.
Y	M0274	Atlas RP-1 Tank Qualification delay.
		Redesigned RP-1 tank not yet qualified. Slip of Launch Date if not resolved by launch campaign start - 8/01/08.
R	M0???	Additional work required to support GSFC required LRO-LCROSS Mission Assurance COLA analysis places excessive workload on launch services contractor
		Launch date slip due to inability to complete both baseline mission analysis and mission unique Mission Assurance COLA in a timely manner.



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LRO-LCROSS / LCROSS - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

There are no Actions.

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	LRO contamination requirements are very strict (0.25% obscuration). Special VIF GSE (Clean enclosures) are designed and on contract to support launch site operational use to protect LRO. Final VIF GSE design at MUCDR.	WI	09/26/2006	06/04/2008
Mission Management	G	Clarification of Mission Success Expectations and hand-off state between LSP and LCROSS. OCE needs clear understanding of LSP position on risk tolerance of LCROSS spacecraft to proceed with ERBs on long-duration components and so we can direct Atlas to perform or not perform qualification on Centaur and separation components as appropriate with mission risk tolerance.	WI	5/01/07	5/30/08
Engineering	G	Launch Vehicle issues that were being tracked for SDO, will now be watch items for LRO-LCROSS since SDO launch is now NET Jan 2009.	WI	8/14/07	8/01/08
Safety and Mission Assurance	Y	Launch Vehicle RP-1 Tank Qualification Schedule.	WI	6/1/07	8/01/08
Safety and Mission Assurance	Y	LCROSS S/C MSPSP - not getting updates as agreed to by PSWG.	WI	11/13/07	5/01/08
Engineering	G	Special LRO over LCROSS PPF stacking access stands. Preliminary design presented at MUPDR. Final designs to be presented at MUCDR.	WI	11/13/07	6/4/08
Engineering	0	RP-1 Tank Requalification Schedule delays. Dan Johnson has submitted formal LSP Risk for this issue. (LSP Risk M0274)	M0274/ERS-06 -305	11/13/07	6/30/08

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Overall Mission	Y	Preparing for FPB request to move launch to Nov 24-27 primary window (from original October 28-30 ILC). New windows will be: Nov 24-27, Dec 9-11, and Dec 22-25. Dovale working with Atlas and USAF to ensure LRO can have late Nov and Dec launch dates.	WI	12/01/07	10/01/08
Launch Site	Y	Delay in securing procurement of Payload Processing Facility contract.	WI	3/24/08	4/30/08
Engineering	Y	GSFC Requirement for Mission Assurance COLA analysis will severely tax Atlas flight trajectory analysis resources and schedule for neglegible risk reduction. The complex targets/trajectories have severely taxed LV contractor's flight trajectory analysis resources. (Beaver/Tutera) Formal LSP Mission Risk in work for this issue.	WI	3/29/08	6/31/08

LRO-LCROSS / LCROSS - Significant Events

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Accomplished	
ATP Launch Services	8/17/2006
LRO Mission CDR	11/6/2006-11/9/2006
LCROSS Mission PDR	9/6/2006-9/8/2006
LCROSS Mission CDR	2/21-23/2007
LRO/LCROSS Requirements TIM	8/24/2006
LRO/LCROSS Kick-off MIWG	9/25/06-9/26/06
GOWG #1	11/28/2006-11/30/2006
LCROSS Confirmation Review	1/19/2007
LRO/LCROSS MURR	02/28/2007-02/28/2007
LV Mission Unique Requirements Review (MURR) complete	2/28/07-2/28/07
MIWG3/GOWG2/LV Mission Briefing to Range Safety	4/10/07-4/12/07
Early confidence testing of LRO TM, LCROSS discrete SIL, elec connectors pull test.	4/17/07-5/25/07
First round of CPWSR data released	5/25/07-6/21/07
MIWG 4 - Denver (ICD Release, and Avionics Splinter, EICD and MICD Review)	8/7/07-8/9/07
Recieved summary of white paper from LCROSS clarifying risk acceptance/tolerance (Class D.) Final White Paper recieved July 13, 2007.	6/22/07-7/15/07
Long duration Centaur contamination sources and residuals analysis. (White paint, abrasion overwrap, foam outgassing, resid H2O, & resid. propellants.) Results in 12/17/07 Memo - presentation at March MIWG.	4/01/07-12/31/07
MUPDR	11/06/07-11/07/07

Planned	
MUCDR - moved out to early June	06/03/2008-06/04/2008
Commercial PPF contract (CLIN) in place for LRO and LCROSS processing.	10/30/07-04/30/2008
LRO Match-mate & Shock test @ GSFC	05/01/2008-05/15/2008
MIWG #6 (NGST - Redondo Beach)	03/17/2008-03/18/2008
Atlas Test Like You Fly (TLYF) Review	05/07/08-05/08/08

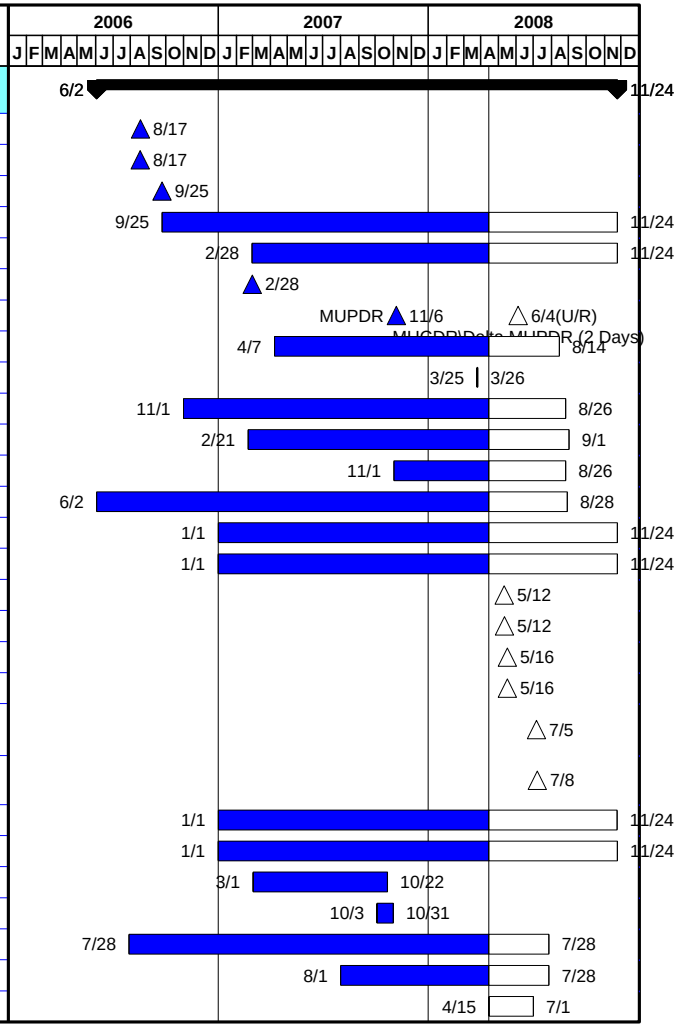
LCROSS Electrical Connector Development test.	6/25/07-9/30/07
GOWG 3 - KSC	1/9/08 -1/10/08
Preliminary Release of LRO & LCROSS LSSPs.	10/30/07-11/30/07
ICD Baseline release (4 parties -Atlas, LSP, LRO, & LCROSS)	9/14/07-1/04/08
Preliminary CPWSR Data deliveries.	6/21/07-7/18/07
Final Loads Cycle Report Complete/Documented.	8/7/07-9/18/07
MIWG #5 (GSFC)	12/11/2007-12/12/2007
LCROSS Matchmate @ NGST	4/15/08-4/17/08
MUPDR- Reconvene (To close items from MUPDR)	02/20/2008-02/20/2008
GOWG #4 (New Date) May 20 (May 21 SLC-41 familiarization)	5/20/08-5/21/08

BOSS LRO-LCROSS Schedule

LSP-F-330.02 Basic

4/14/08

ID	WBS	Name	Resp.
2		**LV & SC Engineering & Manufacturing Phase (~L-27 months to ~L-3 months)**	
3		START PHASE	
4	4.3.1	ATP the Mission & Secure Funding	PIM
5	4.3.2	Hold MIWG Kickoff Meeting	MM
6	4.3.3	Manage ICD Development	MM
7	4.3.4	CDRL Input & Approval	MM
8	4.3.5	MU Requirements Review	LV
9	4.3.6	Launch Vehicle Design Review (PDR & CDR)	LV
10	4.3.7	LV Mfg	LV\MM
11	4.3.8	"LV Contractor Internal MRR (e.g., MRB or VSTR)" (PLA/PSR Review)	LV\TM
12	4.3.9	Define SC Testing - LRO	SC\TM
13	4.3.9	Define SC Testing - LCROSS	SC\TM
15	4.3.11	S/C Testing - LRO	SC\TM
16	4.3.11	S/C Testing - LCROSS	SC\TM
17	4.3.12	Provide S/C CDRL Input - LRO	SC\TM
18	4.3.12	Provide S/C CDRL Input - LCROSS	SC\TM
19	4.3.13	Submit Launch Site Operations Plan - LRO	SC\LSIM
20	4.3.13	Develop Launch Site Operations Plan - LCROSS	SC\LSIM
21	4.3.14	S/C Final MSPSP - LRO	SC\SMA
22	4.3.14	S/C Final MSPSP - LCROSS	SC\SMA
23	4.3.15	Receive Launch Site Procedures - LRO (Haz=55 days prior to first use; Non-Haz=10 days prior to first use)	SC\LSIM
24	4.3.15	Receive Launch Site Procedures - LCROSS (Haz=55 days prior to first use; Non-Haz=10 days prior to first use)	SC\LSIM
25	4.3.16	CDRL Review	TM
26	4.3.17	Mission Unique IV&V	TM
27	4.3.18	Publish Preliminary Launch Site Support Plan - LRO	LSIM
28	4.3.18	Publish Preliminary Launch Site Support Plan - LCROSS	LSIM
29	4.3.19	"Exercise all TA's, NSS, Mods to contract to meet needs"	PIM
30	4.3.20	Procure PPF via Payload Process Task Order	PIM
31	4.3.21	PRD/OR	LSIM



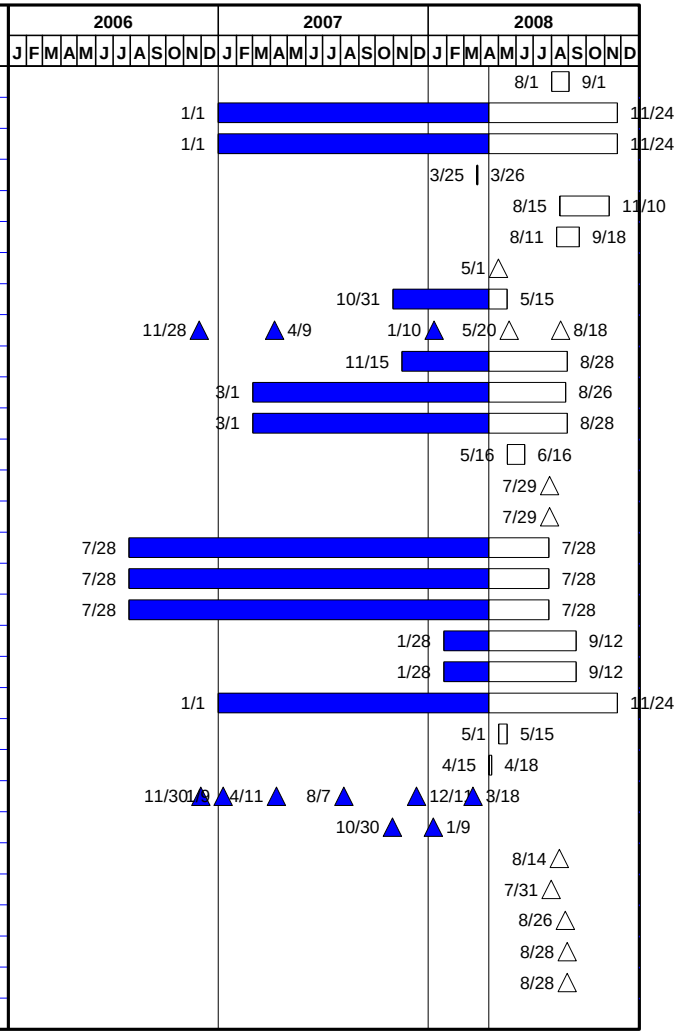
TM = Technical Management
HQ = NASA HQ & Mission Directorate
LD = Launch Director
LSP = LSP Mgmt
LSIM = Launch Site Integration Manager
LSTO = LSTO (Mini Source Board)
LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

BOSS LRO-LCROSS Schedule

LSP-F-330.02 Basic

4/14/08

ID	WBS	Name	Resp.
32	4.3.22	Review LV Mission Unique MSPSP	SMA
33	4.3.23	Mission Support Analysis	TM
34	4.3.24	Verify ICD	TM
35	4.3.25	HAR/MSR equivalent	LV\VSE
36	4.3.26	Develop LV/SC & Integrated LS Procedures	LV\TM
37	4.3.27	LV Components arrives at Launch Site	LV\VSE
38	4.3.28	Publish Baseline LSSP - LRO	LSIM
39	4.3.28	Publish Baseline LSSP - LCROSS	LSIM
40	4.3.40	GOWG	MM
41	4.3.30	Prepare PPF & services for GSE/SC arrival	LSIM
42	4.3.31	Comm & Telemetry Reviews - LRO	LSIM
43	4.3.31	Comm & Telemetry Reviews - LCROSS	LSIM
44	4.3.32	Review S/C Final MSPSP	SMA
45	4.3.33	GOR - LRO	LSIM
46	4.3.33	GOR - LCROSS	LSIM
47	4.3.34	Process Launch Delays as needed	PIM
48	4.3.35	Track Milestone Payments	PIM
49	4.3.36	Procure Deployable & Fixed Telemetry Assets	PIM
50	4.3.37	Begin Access Badging & Training - LRO	LSIM
51	4.3.37	Begin Access Badging & Training - LCROSS	LSIM
52	4.3.38	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev, Des Rev, Qual)"	TM
53	4.3.39	Payload-LV Fitcheck - LRO	TM
54	4.3.39	Payload-LV Fitcheck - LCROSS	TM
55	4.3.29	MIWG	LSIM
56	4.3.41	Safety TIMs PSWG	SMA
57	4.3.42	S/C PreShip Review - LRO	SC\LSIM
58	4.3.42	S/C PreShip Review - LCROSS	SC\LSIM
59	4.3.43	S/C Ships - LRO	SC\LSIM
60	4.3.43	S/C Ships - LCROSS	SC\LSIM
61	4.3.44	Phase Close-Out	MM



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LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

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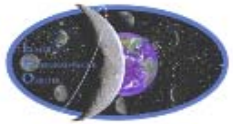
LRO-LCROSS / LCROSS Mission Management

Charles Tatro

LAUNCH SERVICES PROGRAM

Mission	LRO-LCROSS / LCROSS
Launch Date	2008/10/28
Orbit Requirement	Lunar Trajectory
Launch Vehicle Class	Atlas V
Launch Period Window	0
PPF	ASO-KSC
Mass (kg)	2000 (LRO)
PAD	SLC 41



	Feb	Mar	Apr
ICD	G	G	G

There are no signed SCNs	There are no SCNs in Review

Observatory Status	Feb	Mar	Apr
Observatory Status	G	G	G
Schedule	Y	Y	Y
Budget	G	G	G
Deliverables	G	G	G
Testing	G	G	G
ATLO	0	G	G
Instrument	Y	Y	Y

Launch Vehicle Status			
Integrated Schedule	G	G	Y
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	G	Y	Y
Ground Stations	G	G	G
Deployables	0	N/A	0
P-3/OTTR	0	N/A	0

Mission Center:	Other
Program:	LPRP, S/C Projects @ GSFC & ARC
PM	Craig Tooley/ Cathy Peddie
LVI	Tom Ajluni/Tom Jones
MM	Charles Tatro
IE	Diana Calero
LSIM	Mark Shugg
PIM	Harold Coleman
MAM	Ken Hale
MCE	Marty Lougheed
MTE	Mike Patton

John F. Kennedy Space Center

LCROSS Mission Management

Charles Tatro

LAUNCH SERVICES PROGRAM

Mission	LCROSS
Launch Date	2008/10/28
Orbit Requirement	LGALRO
Launch Vehicle Class	Atlas V
Launch Period Window	0
PPF	ASO-KSC
Mass (kg)	<100
PAD	SLC 41

	Feb	Mar	Apr
ICD	G	G	G

There are no signed SCNs	There are no SCNs in Review

Observatory Status

	Feb	Mar	Apr
Observatory Status	G	G	G
Schedule	G	G	G
Budget	G	G	G
Deliverables	G	Y	Y
Testing	G	G	G
ATLO	0	0	0
Instrument	G	G	G

Launch Vehicle Status

Integrated Schedule	G	G	Y
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	G	G	G
Ground Stations	G	G	G
Deployables	0	0	0
P-3/OTTR	0	0	0

Mission Center:	AMES
Program:	LPRP/ESMD
PM	Dan Andrews
LVI	Tom Luzod
MM	Charles Tatro
IE	Norman Beck, Jr.
LSIM	William Van Dyke
PIM	Harold Coleman
MAM	Craig Schreiber
MCE	Marty Lougheed
MTE	Mike Patton

LRO-LCROSS / LCROSS - Engineering

Diana Calero

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	Y	Y	Y
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	N/A	N/A	0
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	Y	Y	Y
Certification	N/A	N/A	0
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	G	G	G

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	290
VERIFIED TO DATE	7

LAUNCH PAD / GSE MODS (IF APPLICABLE)

LRO Clean Enclosure GSE

MISSION UNIQUE STUDIES (IF APPLICABLE)

Modal sensitivity analysis due to LCROSS SC modal uncertainty

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LRO-LCROSS / LCROSS - Mission ERB Status

Diana Calero

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	ERS 06-401	LRO/LCROSS ICD	☑	☐	☐	☑	☐	☑	☑	☑
G	ERS 06-397	LRO/LCROSS MURR	☑	☐	☑	☐	☐	☑	☑	☑
G	ERS 06-398	LRO/LCROSS MUPDR	☑	☐	☑	☐	☐	☐	☐	☐
0	ERS 06-399	LRO/LCROSS MUCDR	☑	☐	☐	☑	☐	☐	☐	☐
0	ERS 06-400	LRO/LCROSS MPDR	☑	☐	☐	☑	☐	☐	☐	☐
G	07-136	LCROSS Separation System Thermal. Sep System Test plan in work Environment	☐	☑	☐	☑	☑	☐	☐	☐
Y	ERS-07-306	7-pin DBAS connector qual test	☑	☐	☐	☑	☐	☐	☐	☐
G	ERS-07-354	Spacecraft IFD zinc and cad parts	☐	☑	☐	☑	☑	☐	☐	☐

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LRO-LCROSS / LCROSS - Vehicle ERB Status

Diana Calero

[redacted] LAUNCH SERVICES PROGRAM [redacted]

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
0	ERS-05-196	Atlas V - Thermal Assessement and Resdesign of Single Pneumatics Panel [long coast]	☐	☑	☐	☐	☑	☐	☐	☐
0	ERS-05-345	Centaur Large Helium Bottle (LHB) COPV	☑	☐	☐	☑	☐	☐	☐	☐
0	ERS-03-609 /ERS-06-305	Atlas V - Booster RP Tank / Atlas V RP Tank Long Term Redesign	☐	☑	☐	☐	☑	☐	☐	☐
0	ERS-06-21	AV-010 Post Flight Data Review (First Article)	☐	☑	☐	☐	☑	☐	☐	☐
0	07-204	Centaur performance degradation for NRO mission	☐	☑	☐	☐	☑	☐	☐	☐
0	06-081	Atlas-V Data Investigation, AV-010-009 mesurement booster pod exceedance	☑	☐	☐	☑	☐	☐	☐	☐

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LRO-LCROSS / LCROSS - Launch Site

Mark Shugg

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	9/30/2007	10/25/07
Baseline	04/18/2008	

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	0	0	0
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
KSC Fueling Service	G	G	G
PPF	G	G	G
Commercial PPF Contract	R	Y	Y
Spacecraft OPS	0	0	0

John F. Kennedy Space Center

LCROSS - Launch Site

William Van Dyke

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	09/30/2007	11/2/2007
Baseline	05/18/2008	

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	Y	G	G
Radiation Control	0	0	0
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
KSC Provided Fueling Service	G	G	G
PPF	G	Y	Y
Commercial PPF Contract	Y	Y	Y
Spacecraft OPS	0	0	0

LRO-LCROSS / LCROSS Budget Breakdown

Harold Coleman

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.
* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

John F. Kennedy Space Center

LCROSS Budget Breakdown

Harold Coleman

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
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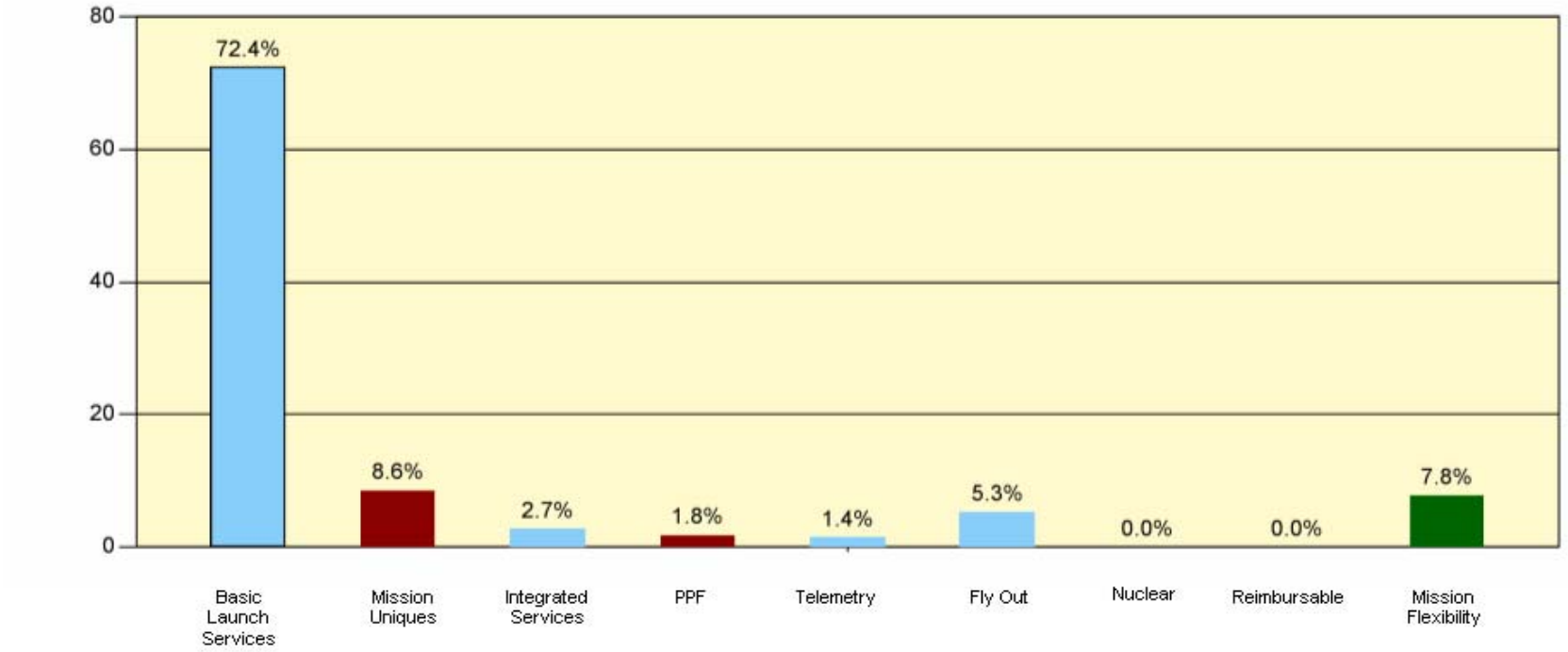
Launch Services Budget Breakdown

LRO-LCROSS / LCROSS Mission

Harold Coleman

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Percentages reflect LRO project only. LCROSS reported separately. Variance from October reporting.

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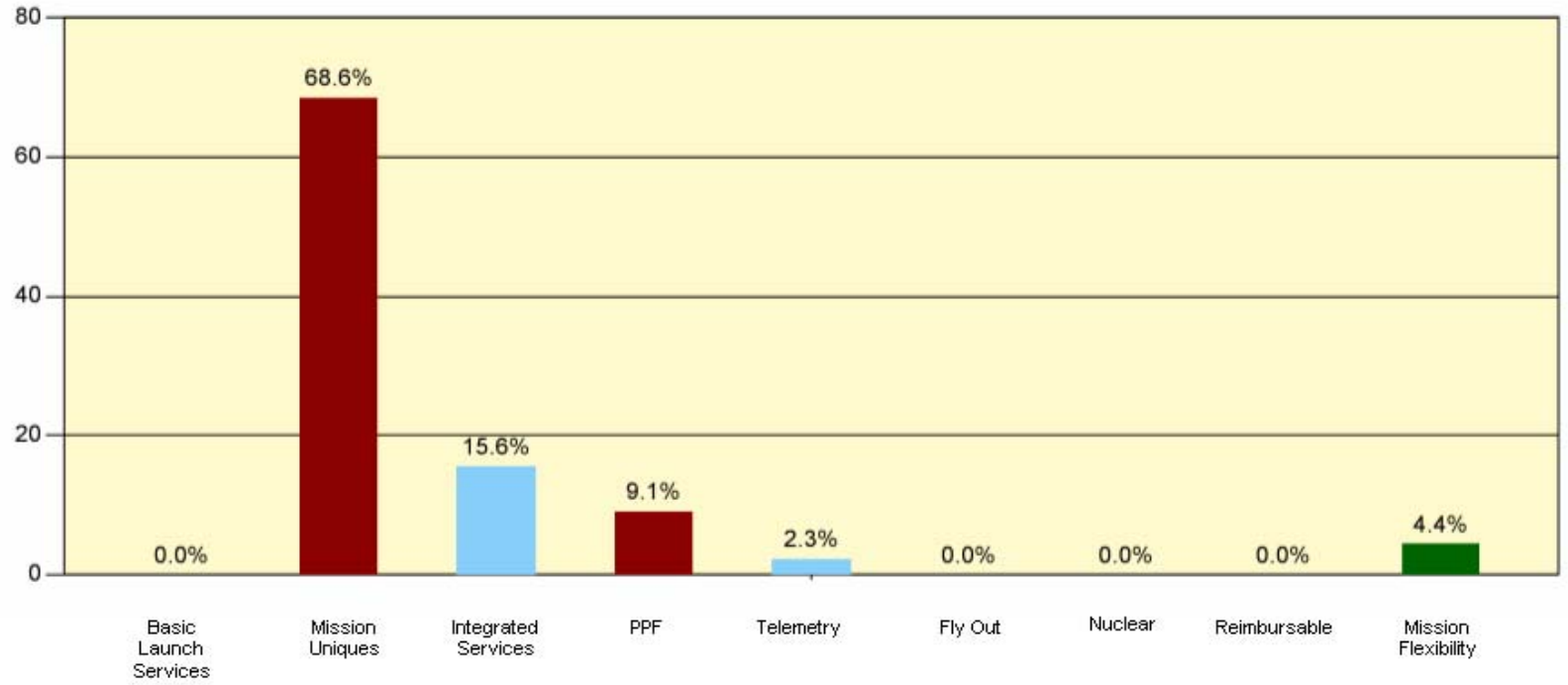
Launch Services Budget Breakdown

LCROSS Mission

Harold Coleman

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Percentages reflect LCROSS project only. LRO reported separately. Variance from April reporting results from a slight increase in Mission Uniques liens to cover proejcted outreach activities.

John F. Kennedy Space Center

LRO-LCROSS / LCROSS - Business

Harold Coleman

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone #1	8/17/06
Milestone #2	1/31/07
Milestone #3	4/20/07
Milestone #4	05/16/2007
Milestone #5	9/4/07
Milestone #6	12/20/07
Milestone #7	02/26/2008
Milestone #8	4/30/08
Milestone #9	7/31/08
Mllestone # 10	10/31/08

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services

Contract Mod	Number	Description
	NLSB-226	Renamed CLIN 23 "TBD" from "LRO"
	NLSL-086	ATP Standard Service CLIN 8
	NLSL-092	ATP of MUS 4.0 - Enhanced PLA and PLF Cleaning
	NLSL-093	ATP of MUS 8.0a - Test PLA for S/C Testing
	NLSL-098	3% Volume Buy Discount Application
	NLSL-092	ATP of MUS 10.0 - SC Deposition
	NLSL-093	ATP OF MUS 8.0b - Support for S/C Testing
	NLSL-093	ATP of NSS 11.2a - Ultraviolet inspection
	NLSL-093	ATP of NSS 11.2d - Tape Cleaning of PLF

Contract Mod	Number	Description
	NLSL-086	ATP of NSS 2.1d - Large Payload Fairing (LPF)
	NLSL-086	ATP of MUS 2.0 - Interleaved Telemetry
	NLSL-086	ATP of MUS 3.0 - SC GN2 Grade C Purge
	NLSL-086	ATP of MUS 5.0 - Real Time Video
	NLSL-086	ATP of MUS 6.0 - Mission Unique Flight Design and Analyses
	NLSL-086	ATP of NSS 11.1b - Molecular Contamination Monitoring
	NLSL-086	ATP of NSS 11.2c - Particulate Fallout Monitoring
	NLSL-106	Adjust launch window to 10/28/08 - 10/30/08
	NLSL-116	Add second contingency launch window from November 25 - 27, 2008
There are no LD Contract Mods		

Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLS-075	LCROSS Mission Requirements Update (Centaur Long Duration Study/Analysis)	05/31/2008	
	NLS-076	LCROSS SIL Testing	05/31/2007	06/08/2007
	NLS-077	LCROSS Electrical Connector Development Test (DET)	09/30/2007	10/01/2007
	NLSB-173	Nutation Time Constant Assessment	1/13/06	1/31/06
	NLSB-174	Early Mission Integration Support	11/30/06	1/31/06
	NLSB-189	DIV Launch Vehicle Models	3/6/06	3/20/06
	NLSL-067R2	E-Field Level Analysis and LV Compatibility for LRO S-band Transmission in the Fairing	10/31/2006	11/17/2006
	NLSL-084	LCROSS Electrical Connector 7-Pin Qualification	03/15/2008	
	NLSL-085	Contamination Control Ground Support Equipment (GSE)	11/30/08	
	NLSL-095	Additional Separation Analysis to Support LRO/LCROSS Mission	08/31/2008	
There are no PPF Contract Mods				
There are no Other Contract Mods				

	Issues
G	RFP for PPF Task order has been released; anticipate award in February 2008.
G	Contract Mod for lengthening launch window is in work.
0	This mission is designated as planetary and is subject to equitable adjustment, therefore grace days do not apply.

John F. Kennedy Space Center

LCROSS - Business

Harold Coleman

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	0	G

Milestone	Date

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services

Contract Mod	Number	Description
	NLSL-086	ATP of Mission Unique Service (MUS) 11.0 for LCROSS
	NLSL-098	3% Volume Buy discount Application to MUS 11.0

There are no LD Contract Mods

Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSL-075	Mission Requirements Update	5/31/2008	
	NLSL-076	Software Integration Laboratory (SIL) Testing	05/31/2007	06/08/2007
	NLSL-077	Electrical Connector Development Test	09/30/2007	10/01/2007
	NLSL-084	Electrical Connector 7 Pin Qualification	03/15/2008	
	NLSL-085	Contamination Control Ground Support Equipment (GSE)	11/30/2008	

There are no PPF Contract Mods

There are no Other Contract Mods

There are no Issues.

LRO-LCROSS / LCROSS - Safety and Mission Assurance

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Ken Hale

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	G	G
Software / Hardware Problems	☐	☑	No signifcant issues	G	G	0
Alerts	☐	☑	No significant issues being tracked.	G	G	0
Audits/Inspections/Surveillances	☐	☑	No significant issues.	G	G	0
Limited Life Items	☐	☑	No significant issues being tracked.	G	G	0
Reliability				G	G	G
FMEA	☐	☑	No significant issues being tracked.	G	G	0
Reliability Assessments	☐	☑	No significant issues being tracked.	G	G	0
Safety				Y	Y	Y
Requirements Definitions	☐	☑	LCROSS tailoring approved by Range. LRO tailoring under review by Range.	G	G	0
Range Safety & Mission Flight Rules	☐	☑	Working with both Spacecrafts and Range on acceptance of tank welds. Working resolution of access to LRO S/C Fill & Drain valves for emergency offload.	G	G	0
Licenses/Use Authorizations	☐	☑	No significant issues being tracked.	G	G	0
Safety Documentation	☐	☑	Yellow for LCROSS MSPSP. Updates to LCROSS MSPSP have not been received since May 2007. LCROSS to deliver 70% complete MSPSP by March. Will remain yellow until MSPSP is received.	Y	Y	0
Non-compliances	☐	☑	None identified to date.	G	G	0
Contingency Planning	☐	☑	Working to identify specific contingency and data impound responsibilities based on LCROSS handoff.	G	G	0
Mission Assurance				Y	Y	Y
Lessons Learned	☐	☑	No significant issues being tracked.	G	G	0
First Flight/Mission Unique items	☐	☑	No issues	G	G	0
Test/Qualification/Certification	☐	☑	Assessing qualification of In-Flight Disconnects for LCROSS separation (Risk M0255). Anticipate no significant issue.	G	G	0
Mission Assurance Assessments	☐	☑	AV-09 FIV anomaly investigation.	Y	Y	0
Risk Management	☐	☑	No significant issues being tracked.	G	G	0

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LRO-LCROSS / LCROSS Comm & Telemetry

Marty Lougheed and Mike Patton

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	G	G	G
Data Comm	G	G	G
Networks	G	G	G
Video Comm	G	G	G
Timing	G	G	G
RF Comm	G	G	G
LSSP Comm Annex	G	G	G

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

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LCROSS Comm & Telemetry

Marty Lougheed and Mike Patton

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	G	G	G
Data Comm	G	G	G
Networks	G	G	G
Video Comm	G	G	G
Timing	G	G	G
RF Comm	G	G	G
LSSP Comm Annex	G	G	G

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

SDO Project Summary

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Mission	SDO
Launch Date	2008/12/01 (NET)
Launch Vehicle	Atlas V
Launch Period Window	
PPF	Commercial PPF

OVERALL MISSION

Feb	Mar	Apr
G	G	G

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	G
Manifest/Range	Y	Y	Y
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	0
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	G	G	G
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	G	G	G
Mission Specific	G	G	G
Certification	N/A	N/A	N/A
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	Y	Y	Y
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	N/A	N/A	N/A
Deployables	N/A	N/A	N/A
P-3/OTTR	N/A	N/A	N/A

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

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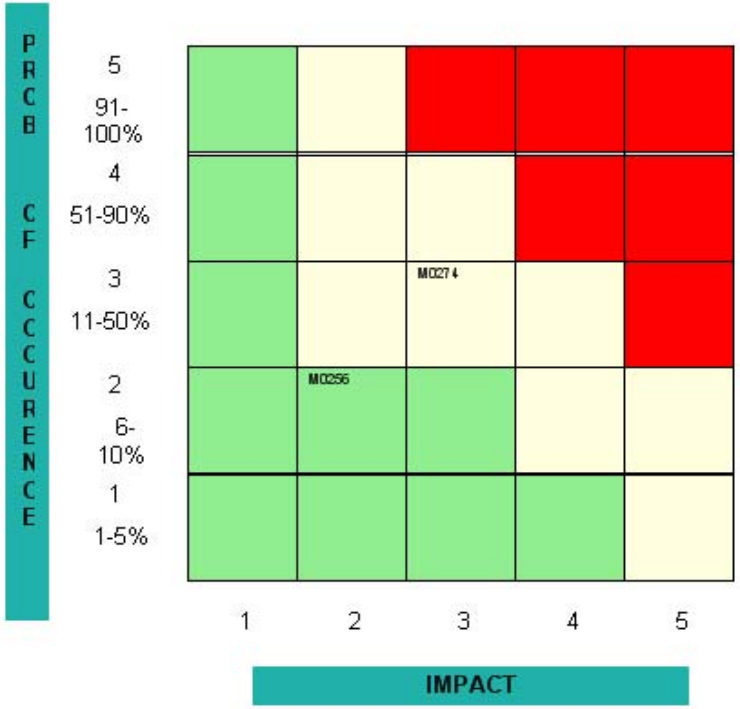
SDO - Open/Accepted Risks

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
G	M0256	SDO EMI/EMC test levels are below those recommended by MIL-STD-461E. After system level testing is complete, there are no plans to disposition new sources added to the range.
		Range sources that go on line after SDO testing is complete must be mitigated or they may damage the SC instruments. The mitigation could lead to a delay in processing or an increase in LSP resources.
G	M0274	Atlas V RP-1 Tank Qual Testing delays have occurred, more expected.
		RP Tank may not be qualified in time to support systems review.



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SDO - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

There are no Actions.

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	GSFC uses GEVS for EMI/EMC specifications. It is being interpreted as only testing to *known* transmission sources. Thus the SC may end up being under-tested at low frequencies. SDO will not be testing to suceptibility levels, only performing the minimum of GEVS or known transmitters and relying on range mitigation.	Risk M0256	12 Oct 06	1 Dec 08
Engineering	G	SDO contamination "requirements" are mare than typical. SDO requesting extensive verifications and real-time monitoring and alarms. Increased requests for fairing access at the VIF conflict with increased contamination requests. Update: Most issues resolved at 28 Mar MIWG. ICD has been signed, but several TA's need to be worked to resolve remaining issues. Update: Remaining issues resolved at 28 Feb MIWG, but still need to be documented in the ICD.	WI	12 Oct 06	30 Apr 08
Launch Site	0	Availability of ASO Building 9 East Bay due to LRO.	WI	01/11/2008	09/01/2008
Engineering	G	AV-009 mission had under performing Centaur. Root cause has been attributed to a leaking fuel inlet valve. Most valves in the fleet are similar to the AV-009 valve. A fix for NASA missions has not been identified. Update: A CDR was held for the RL10 redesign to address the valve performance. Redesign approved by the NASA board.	ERS-07-204	18 Jun 07	5 May 08
Engineering	G	This risk is yellow against LRO for launch date of Oct 08. Additional months against SDO launch date of Dec 08 provide sufficient schedule to complete qualification.	M0274		
Engineering	Y	The loads on the spacecraft violate ICD requirements unless the water suppression system is operating. ULA has tried to show compliant loads without the water suppression system, but was unable to do so. If the water suppression system is inoperable, SDO will not be able to launch.	WI	28 Feb 08	06/30/2008

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SDO - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Procurement/ ATP	29 Sep 04
SDO CDR @ GSFC	5 Apr 05-7 Apr 05
SDO Adapter to LMSSC Tooling Fitcheck	12 Jan 06
Test PLA/SC Test unit fitcheck @ GSFC	18 Jul 06
MIWG @ LM/Denver	24 Oct 06-25 Oct 06
GOWG @ Astrotech	11 Oct 06-12 Oct 06
Initial CPWSR delivered	10 Aug 06-7 Feb 07
Baseline ICD signed	1 Dec 06-8 May 07
SC Propulsion Module Sine Vibe Test	15 Oct 07-17 Oct 07
MIWG @ GSFC	18 Sep 07-19 Sep 07
GO TIM @ ASO	12/05/2007-12/05/2007
MIWG #6 @ Denver	28 Feb 08-28 Feb 08
SDO Pre-environmental Review @ GSFC	3/19/08-3/20/08
SDO EMI/EMC Environmental test plan	12 Feb 08

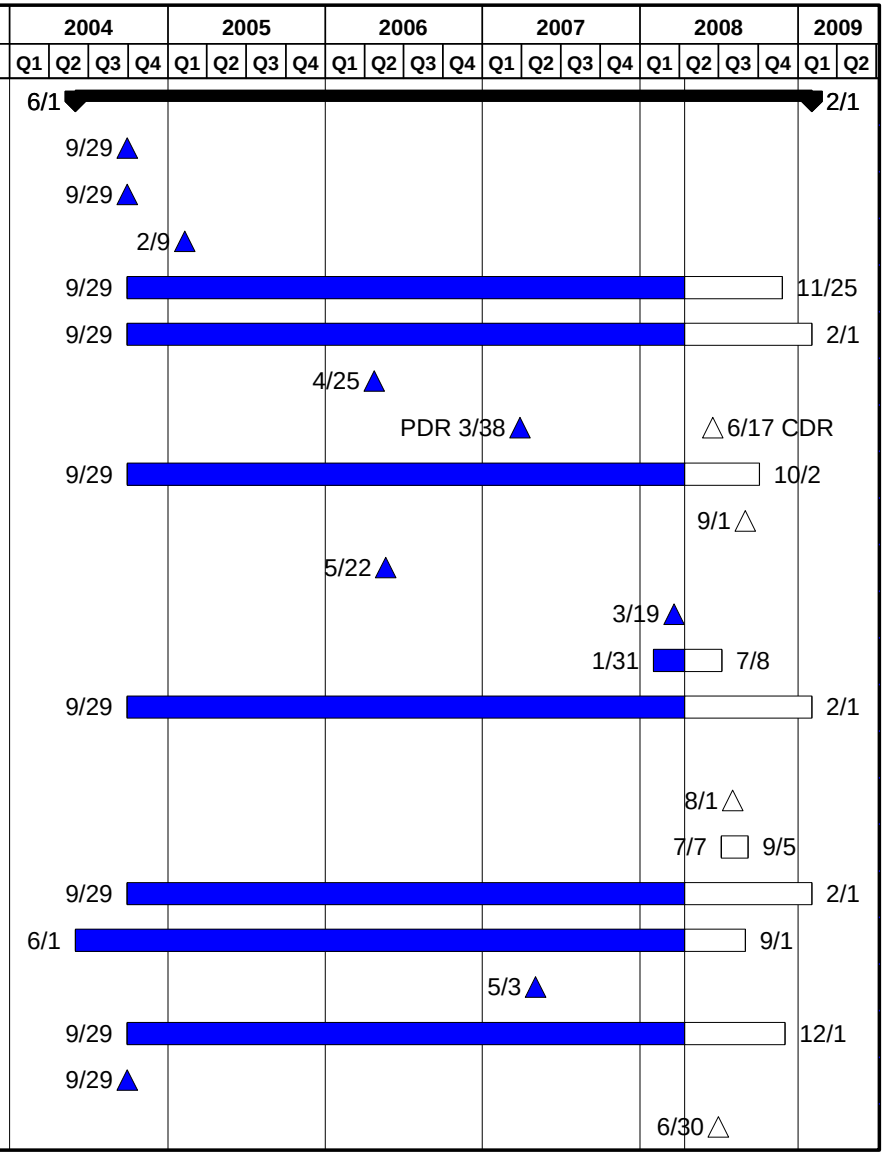
Planned	
Updated CPWSR	11 Dec 07-5 May 08
SDO MPDR	06/17/2008- 06/17/2008
MIWG/GOWG @ KSC	08/27/2008- 08/27/2008
Install the test PLA for vibe testing.	21 May 08-24 May 08

BOSS SDO Schedule

LSP-F-330.02 Basic

4/11/08

WBS	Name	Resp.
	LV & SC Eng & Mfg Phase (~L-27 mths to ~L-3 mths)	
	START PHASE	
4.3.1	ATP the Mission & Secure Funding	PIM
4.3.2	Hold MIWG Kickoff Meeting	MM
4.3.3	Manage ICD Development	MM
4.3.4	CDRL Input & Approval	MM
4.3.5	MU Requirements Review	LV
4.3.6	Launch Vehicle Design Review (PDR & CDR)	LV
4.3.7	LV Mfg (AV-021)	LV
4.3.8	"LV Contractor Internal MRR (e.g., MRB or VSTR)"	LV
4.3.9	Define SC Testing	SC
4.3.10	SIR/Pre Environmental Review	SC
4.3.11	S/C Testing	SC
4.3.12	Provide S/C CDRL Input	SC
4.3.13	Develop Launch Site Operations Plan	SC
4.3.14	S/C Final MSPSP	SC
4.3.15	Develop Launch Site Procedures	SC
4.3.16	CDRL Review	TM
4.3.17	Mission Unique IV&V	TM
4.3.18	Publish Preliminary Launch Site Support Plan	LSI
4.3.19	"Exercise all TA's, NSS, Mods to contract to meet needs"	PIM
4.3.20	Procure PPF via Payload Process Task Order	PIM
4.3.21	Release PRD/OR to ER	LSI



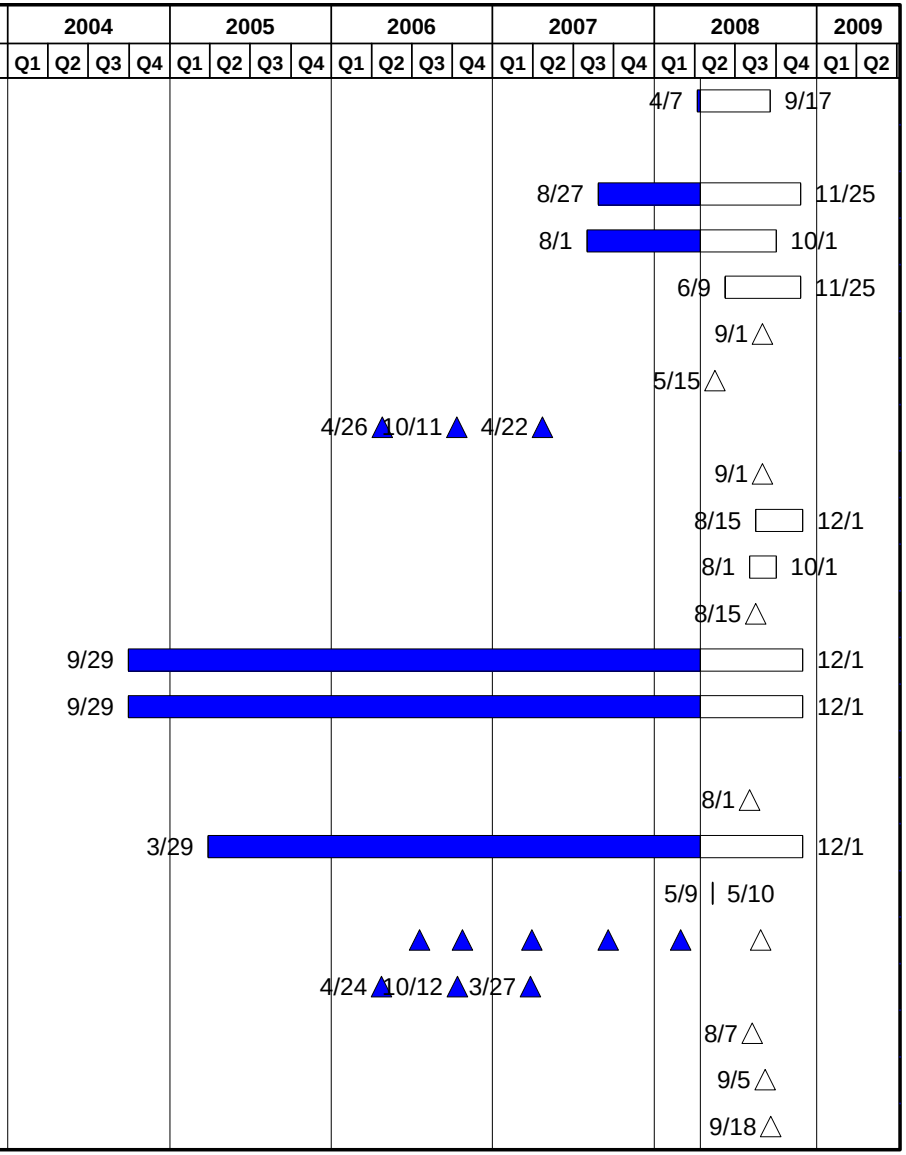
TM = Technical Management
HQ = NASA HQ & Mission Directorate
LD = Launch Director
LSP = LSP Mgmt
LSIM = Launch Site Integration Manager
LSTO = LSTO (Mini Source Board)
LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

BOSS SDO Schedule

LSP-F-330.02 Basic

4/11/08

WBS	Name	Resp.
4.3.22	Review LV Mission Unique MSPSP	SMA
4.3.23	Mission Support Analysis	TM
4.3.24	Verify ICD	TM
4.3.25	HAR/MSR equivalent	LV
4.3.26	Develop LV/SC & Integrated LS Procedures	LV
4.3.27	LV Components arrives at Launch Site	LV
4.3.28	Publish Baseline LSSP	LSI
4.3.29	GOWG	LSI
4.3.30	Prepare PPF & services for GSE/SC arrival	LSI
4.3.31	Comm & Telemetry Reviews	LSI
4.3.32	Review S/C Final MSPSP	SMA
4.3.33	GOR	LSI
4.3.34	Process Launch Delays as needed	PIM
4.3.35	Track Milestone Payments	PIM
4.3.36	Procure Deployable & Fixed Telemetry Assets	PIM
4.3.37	Begin Access Badging & Training	LSI
4.3.38	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev,	TM
4.3.39	Payload-LV Fitcheck - Matchmate	TM
4.3.40	MIWG	MM
4.3.41	Safety TIMS PSWG	SMA
4.3.42	S/C PreShip Review	SC
4.3.43	S/C Ships	SC
4.3.44	Phase Close-Out	MM



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SC = Spacecraft Project
SMA = Safety & Mission Assurance

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SDO Mission Management

Wanda Harding

LAUNCH SERVICES PROGRAM

Mission	SDO
Launch Date	2008/12/01 (NET)
Orbit Requirement	GTO
Launch Vehicle Class	Atlas V
Launch Period Window	
PPF	Commercial PPF
Mass (kg)	3200 Kg
PAD	SLC 41

	Feb	Mar	Apr
ICD	G	G	G

SIGNED SCNS:		SCNS IN REVIEW	
SCN #	**DATE SIGNED**	**SCN #**	**DATE SIGNED**
SDO Atlas V ICD (Rev -)	05/08/2007	002 (3.3.5, EMC)	
001 (3.4 Flt Design)	08/09/2007	003 (Elec Interfaces)	
004 (3.3.1.1 SC Thermal)	08/09/2007	007 (3.1.2.3 Strength)	

Observatory Status

	Feb	Mar	Apr
Observatory Status	G	G	G
Schedule	Y	Y	Y
Budget	G	G	G
Deliverables	G	G	G
Testing	G	G	G
ATLO	G	G	G
Instrument	Y	G	G

Launch Vehicle Status

Integrated Schedule	G	G	G
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	Y	Y	Y
Ground Stations	N/A	N/A	N/A
Deployables	N/A	N/A	N/A
P-3/OTTR	N/A	N/A	N/A

Mission Center:	GSFC
Program:	Living With a Star
PM	Liz Citrin
LVI	Kevin Hughes
MM	Wanda Harding
IE	Eric Poole
LSIM	Dianna Lampert
PIM	Benjamin Studenski
MAM	Bob Henry
MCE	Robert McEntire
MTE	Marty Lougheed

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005 (Table 4-1 Ver Matrix)	02/28/2008	008 (3.3.2.6 SC Inst GN2 Purge)	
006 (Appendix B: EICD)	03/13/2008	009 3.1.3 (Mass Props)	
010 3.3.5.2.4 (Launch Site RF Environ)	03/13/2008	011 3.3.2 & 3.5.5.1 (Contamination)	
		012 Appendix A: MICD	
		014 3.6 (Safety Requirements)	
		015 3.3.5.4 (Thermal Blanket ESD)	
		016 3.3.4.2 (Acoustics)	
		017 3.1.2.2 SC Interface Loads	

018 3.5.5.1 SC Bus Dedicated Ventilation	
013 3.4.4.1 & 3.4.4.2 Flight Design Updates	
019 4.0 General Updates	

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SDO - Engineering

Eric Poole

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	G	G	G
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	N/A	N/A	N/A
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	G	G	G
Certification	N/A	N/A	N/A
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	Y	Y	Y
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)

Drag on cooling requried. TBD cart capabilities (cleanliness, pwr, elec, cooling)

MISSION UNIQUE STUDIES (IF APPLICABLE)

There are none.

John F. Kennedy Space Center

SDO - Mission ERB Status

Eric Poole

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	ERS-06-182	SDO - First use of D1666 Payload Separation System on Atlas V	☑	☐	☐	☑	☐	☐	☐	☐
G	ERS-06-335	SDO Solar Array Deployment Immediately at Separation	☑	☐	☑	☐	☐	☑	☑	☑
G	ERS-06-378	Solar Dynamics Observatory (SDO) ICD Review	☑	☐	☑	☐	☐	☐	☐	☐
G	07-363	Atlas V Lightning Suppression Assemblies for Payload	☐	☑	☐	☑	☑	☐	☐	☐
G	08-071	SDO MPDR	☑	☐	☐	☑	☐	☐	☐	☐

John F. Kennedy Space Center

SDO - Vehicle ERB Status

Eric Poole

[redacted] LAUNCH SERVICES PROGRAM [redacted]

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	ERS-05-345	Centaur Large Helium Bottle (LHB) COPV	☑	☐	☐	☑	☐	☐	☐	☐
G	ERS-05-196	Atlas V - Thermal Assessment and Redesign of Single Pneumatics Panel [long coast]	☐	☑	☐	☐	☑	☐	☐	☐
G	ERS-06-305	Atlas V - Booster RP Tank / Atlas V RP Tank Long Term Redesign	☑	☐	☑	☐	☐	☐	☐	☐
G	07-204	AV009 Centaur Performance Evaluation	☐	☑	☐	☐	☑	☐	☐	☐

John F. Kennedy Space Center

SDO - Launch Site

Dianna Lampert

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	03/27/2007	4/2007
Baseline	05/15/2008	

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	0

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
PPF	G	G	G
Astrotech	G	G	G
10K Clean Room	G	G	G
Spacecraft OPS	G	G	G

John F. Kennedy Space Center

SDO Budget Breakdown

Benjamin Studenski

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.
* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

John F. Kennedy Space Center

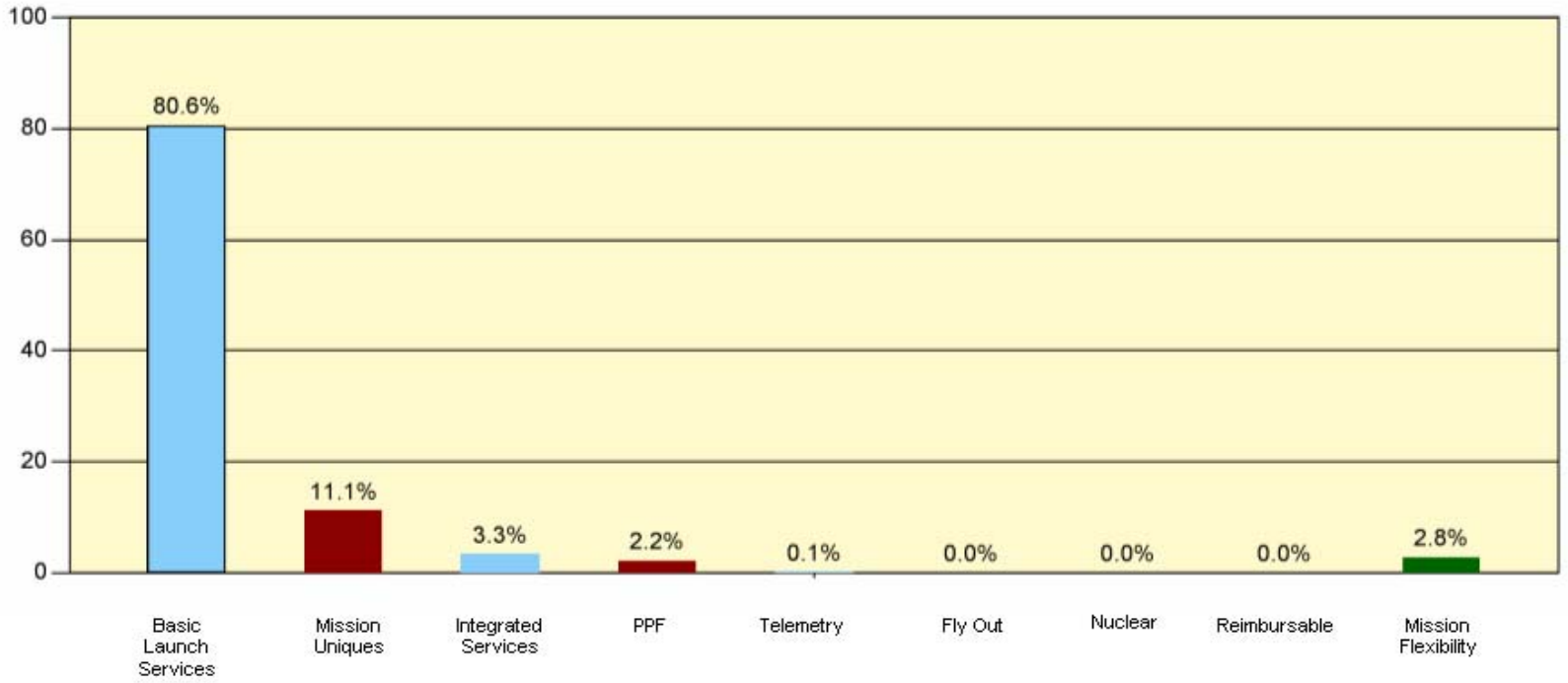
Launch Services Budget Breakdown

SDO Mission

Benjamin Studenski

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Mission has 28 days of grace remaining for delays beyond 12/1/2008. There are no launch delay decision points for government delays on this contract.

John F. Kennedy Space Center

SDO - Business

Benjamin Studenski

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone 1A	09/29/04
Milestone 1B	03/15/05
Milestone 1C	11/15/05
Milestone #2	05/01/06
Milestone #3	08/01/06
Milestone #4	11/01/06
Milestone #5	02/01/07
Milestone #6	05/01/07
Milestone #7	08/01/07
Milestone #7A	11/14/2007
Milestone #8	11/14/2007
Milestone: #9	6/1/2008
Milestone: #10	9/1/2008
Milestone #11	12/1/2008

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services

There are no NSS Contract Mods

Contract Mod (LD)	Number	Description		
	067	Launch date change from 04/15/2008 to 8/1/2008		
	113	Launch date change from 04/15/2008 to 8/1/2008 Equitable Adjustment settlement		
	999	Launch date change from 8/1/2008 to 12/1/2008		
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	028	Coupled Load Analysis (CLA) Report	09/14/2004	10/28/2004
	066	SDO Trajectory Optimization	10/06/06	11/17/2006
	082	Transient Voltage Suppression		
	088R1	Separation Attitude Study	3/28/2008	
Contract Mod (PPF)	Number	Description		
	NNK06LB20B	ATP Commercial Payload Processing Task Order		

There are no Other Contract Mods

There are no Issues.

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SDO - Safety and Mission Assurance

Bob Henry

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	Y	Y
Software / Hardware Problems	☐	☑	RP-1 Tank Qual - Indications are that a fully qualified tank (suitable for 551) will be flown for SDO, therefore Quality rates this yellow pending satisfactory results. Results are expected by the end of March 2008.	Y	Y	Y
Alerts	☐	☑	No Activity	G	G	G
Audits/Inspections/Surveillances	☐	☑	No Activity	G	G	G
Limited Life Items	☐	☑	No Activity	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	☐	☑	No Activity	G	G	G
Reliability Assessments	☐	☑	Reliability data gathering in work	G	G	G
Safety				G	G	G
Requirements Definitions	☐	☑	EWR 127-1 Tailoring In Work	G	G	G
Range Safety & Mission Flight Rules	☐	☑	No activity	G	G	G
Licenses/Use Authorizations	☐	☑	No activity	G	G	G
Safety Documentation	☐	☑	No activity	G	G	G
Non-compliances	☐	☑	None identified to date	G	G	G
Contingency Planning	☐	☑	Deliver by SARR	G	G	G
Mission Assurance				G	G	G
Lessons Learned	☐	☑	No activity	G	G	G
First Flight/Mission Unique items	☐	☑	No activity	G	G	G
Test/Qualification/Certification	☐	☑	No activity	G	G	G
Mission Assurance Assessments	☐	☑	No activity	G	G	G
Risk Management	☐	☑	No issues	G	G	G

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SDO Comm & Telemetry

Robert McEntire and Marty Lougheed

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	0	0	0
Data Comm	0	0	0
Networks	0	0	0
Video Comm	0	0	0
Timing	0	0	0
RF Comm	0	0	0
LSSP Comm Annex	0	0	0

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

GLAST Project Summary

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LAUNCH SERVICES PROGRAM

Mission	GLAST
Launch Date	2008/02/05
Launch Vehicle	Delta II
Launch Period Window	Day to Day 45 min of sunlight after S/C separation
PPF	ASO-KSC

OVERALL MISSION

Feb	Mar	Apr
Y	Y	Y

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	G
Manifest/Range	G	G	Y
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	0
Customer Inputs	G	G	0
PPF	G	G	0
Launch Site Unique	G	G	0
Spacecraft OPS	G	G	0

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	Y	Y	G
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	R	Y	R
Mission Specific	Y	Y	G
Certification	0	N/A	N/A
Mission Analysis	R	Y	G
ERS/ERB	R	Y	R
Launch PAD/GSE	G	G	G
Mission Unique IV&V	G	G	G

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	0	0	G
Deployables	0	0	0
P-3/OTTR	0	0	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

Sensitive But Unclassified

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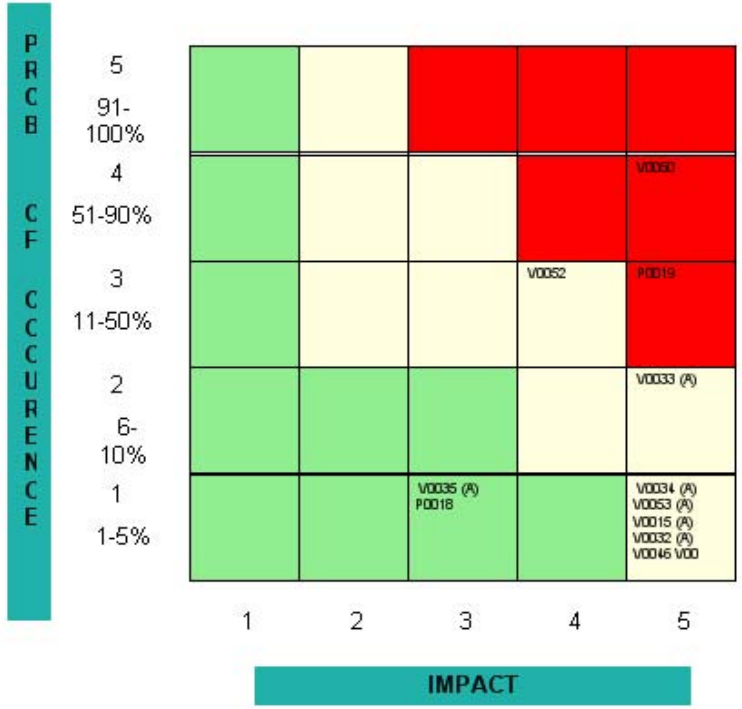
GLAST - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
0	V0032 (A)	The first 3 flights of the Delta 792X Heavy Vehicle resulted in unexpected behavior during transonic flight.
		Delay in launch date due to incomplete anomaly investigation.
0	V0046	ULA does not perform an inspection for microscopic cracks before providing a spacecraft customer with a TPAF.
		Propagation of a micro crack in the TPAF during shock or vibe testing could cause damage to the spacecraft.
0	V0047	Failure analysis of a PacSci detonator that failed service life extension testing uncovered a vulnerability in which detonators could be reworked and inadvertantly returned to production without the correct load.
		Failure to initiate FTS destruct ordnance chain on command.
0	V0050	DAWN experienced a significant delay very late in the hardware production process that delayed the launch readiness date. The same contributing causes exist for other NASA missions.
		Possible delay of other NASA missions.
0	V0015 (A)	Nine flight critical engine section components are unqualified for the newly revised P95/50 MEFL MECO transient environment.
		Loss of mission (worst case).



0	V0033 (A)	Cracks have occurred and been detected within Electronics-Package Thick Film Assemblies.
		Undetected cracks in other E-Packages causing failure.
0	V0034 (A)	Delaminations have occurred within the Graphite Epoxy Motor (GEM) nozzles' Exit Cone Liners (ECL) and Throat Support Insulators (TSI).
		Detrimental hot gas flow, adverse heating and eventual failure of the nozzle.
0	V0035 (A)	A photodiode failed within RIFCA S/N 20093.
		Failure of photodiode in flight causing loss of one lane in RIFCA.
0	V0053 (A)	All solid-nickel cased discrete semiconductors (transistors and diodes in a TO-XX can) are suspect to have conductive nickel flakes as a consequence of the forming process used to manufacture the cans.
		Loss of mission.
0	V0052	LS SMA has noted human error and process issues that indicate that Boeing's Quality Management System Corrective Actions are not preventing re-occurrence.
		The re-occurrence of undetected human errors and process problems can lead to major damage or loss of flight hardware or GSE.
0	P0018	Traditional DMCO testing on DII vehicles will be eliminated.
		Elimination of DMCO testing will not allow for capturing hardware failures off-pad, and thus introduce potential for on pad schedule delays.
0	P0019	USAF must fly out 5 Delta II GPS by end of FY 2008.
		Possible shifts in NASA FPB manifest dates for missions affected.

GLAST - Actions / Issues / Concerns

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LAUNCH SERVICES PROGRAM

Mission Summary Map	G/Y/R	ACTIONS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	Y	ISDS Destruct TLX Scrapped Hardware Discrepancy. Joint NASA/ULA board to be held 4/16 to determine 'fly as is' acceptability.	ERS-08-96	04/15/2008	04/16/2008

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	S/C power on at launch - T-0 battery cooling to be implemented. Testing done to quantify leakage at miniskirt interface completed. No leakage encountered, detailed installation procedures to be implemented.	ERS-06-124	4/17/2006	05/01/2008
Engineering	G	The first 3 flights of the Delta 792X Heavy Vehicle resulted in unexpected behavior during transonic flight.	V0032	03/13/2007	3/20/2008
Engineering	G	Failure analysis of a PacSci detonator that failed service life extension testing uncovered a vulnerability in which detonators could be reworked and inadvertantly returned to production without the correct load.	V0047	03/13/2007	05/30/2008
Engineering	G	DAWN experienced a launch delay due to late shipment of hardware from Decatur. GLAST S2 Decatur ship date is currently end of November '07 for a launch date of 05/29/08.	V0050	04/18/2007	01/31/2008
Engineering	Y	LS SMA has noted human error and process issues that indicate that Boeing's Quality Management System Corrective Actions are not preventing re-occurrence.	V0052	05/23/2007	05/30/2008
Engineering	G	RF & LDS installation may not be completed in time for GLAST. Key contractor personnel needed for system implementation.	ERS-08-24	02/04/2008	04/01/2008
Engineering	R	Tyco relay issues with P&C boxes. Possible failure modes uncovered with current modifications of Stage 1 P&C box.	ERS-07-40	02/15/2008	04/25/2008
Engineering	Y	NASA has issued a no fly of GG TLX. ULA to request use det blocks. ULA has submitted waiver to Range for use of det blocks.	ERS-07-308	02/15/2008	04/30/2008
Engineering	G	Separation Switch envelope violation. Spacecraft has modified magnet mounting assembly. Verification at spacecraft mate.	ERS-08-76	02/15/2008	05/01/2008

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	COSMO-2 1st Stage Engine Mixture Ratio Observation. Inclination increased to 25.6 to compensate for unknown root cause of fuel mix ratio issue.	ERB-07-366	12/13/07	05/01/2008
Engineering	G	GLAST 2nd stage Erection Incident. Waiting to clear H beam.	ERS-08-88	04/07/2008	04/16/2008

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GLAST - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
ATP	9/12/05
PSWG/GOWG	10/17/05-10/19/05
GOWG #3	4/18/06
MIWG #5	4/19/06
ICD Baselined	5/5/06
MIWG #6	9/20/06
TFA	02/21/2006
PMA	10/06/2006
GOWG #4	04/04/2007
ICD Revision "A" Release	05/02/2007
Type I DCR	03/04/2008
Spacecraft Fitcheck	09/25/2007
T-0 Battery Cooling ERB	04/12/2007
ICD ERB	04/13/2007
Pre-Environmental Review	04/11/2007-04/12/2007
DTO Trajectory Analysis	04/02/2007-07/25/2007
MIWG #7	04/19/2007
MIWG #8 at Denver	08/15/2007
Spacecraft Shock Test	10/03/2007-10/05/2007
Spacecraft Sine Vibe/Acoustic	09/17/2007-10/01/2007
GOWG #5	10/23/2007-10/24/2007
MAR	03/04/2008
Spacecraft Pre-Ship Review (To NRL Facility)	11/13/2007-11/14/2007
Spacecraft Pre-Ship Review (NRL to ASO)	02/29/2008

Planned	
MRR (Spacecraft MRR)	4/22/08
SMSR	4/24/08
Mission Readiness Briefing @ HQ	4/29/08

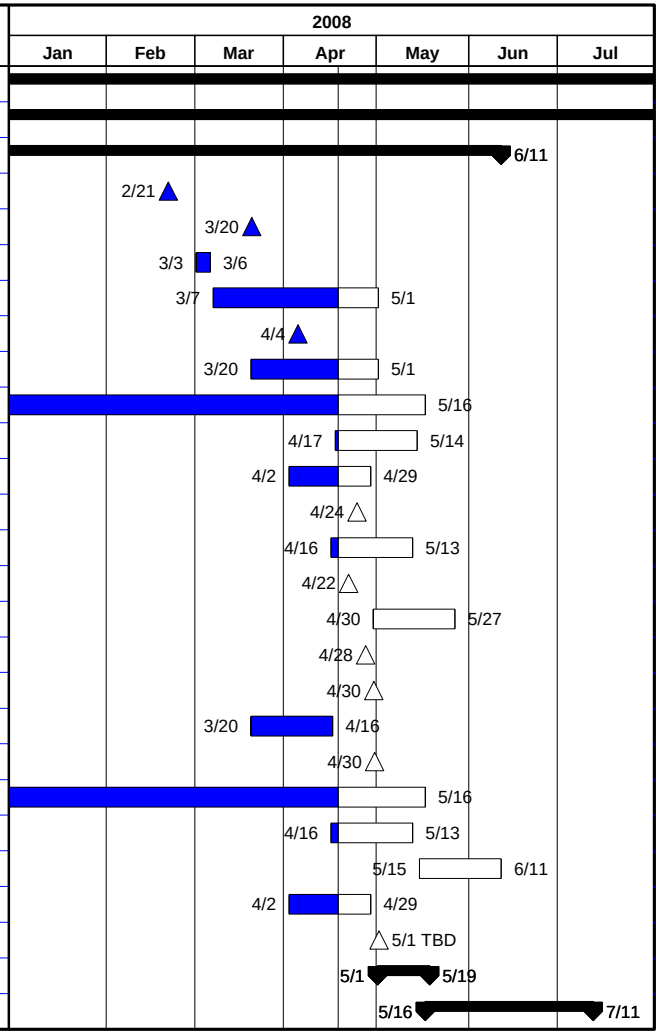
GOR	02/05/2008
Spacecraft ship to ASO	03/04/2008
Vehicle On Stand	03/24/2008
Pre-VOS	03/20/2008
ICD Rev B release	02/29/2008
Launch Vehicle Readiness Review	04/04/2008

BOSS GLAST Schedule

LSP-F-330.02 Basic

4/17/08

ID	WBS	Name	Resp.
1		**BOSS GLAST Schedule**	
2		**LV & SC Engineering & Manufacturing Phase (~L-27 months to ~L-3**	
12		**Launch Site Operations (~L-3 months to ~L-10 days)**	
13		START PHASE	
14	5.3.1	Erect LV Review (e.g. Pre-Vos)	LV
15	5.3.2	"S/C, GSE & Personnel arrive"	SC
16	5.3.3	Process S/C	SC
17	5.3.4	Launch Vehicle Readiness Review (LVRR)	LSP
18	5.3.5	Manage PPF	LSIM
19	5.3.6	"Process PPF, mods, changes, and delays"	PIM
20	5.3.7	Interface with Range & Contractors	LSIM
21	5.3.8	LV Orbital Debris Assessment (ODA) (LV&SC)	TM
22	5.3.9	SMSR	SMA
23	5.3.10	Mishap Preparedness & Contingency Plan	SMA
24	5.3.11	SC Mission Readiness Review	HQ
25	5.3.12	Review Final Analysis and ICD Verification Matrix	TM
26	5.3.13	SC Mate Readiness Review	SC
27	5.3.14	SC ORR	SC
28	5.3.15	Vehicle Pad Operations/ Process LV	LV
29	5.3.16	SC/LV Premate Review	LV
30	5.3.17	Exercise LS Providers TA's & NSS	PIM
31	5.3.18	Integrated Technical Meeting (ITM)	LD
32	5.3.19	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev, Des Rev, Qual)"	MM
33	5.3.20	Define Mission Success Criteria	TM
34	5.3.21	Phase Close-Out	MM
35		**Launch Phase (~L-10 days to Launch)**	
53		**Post Launch Phase (to ~L+3 months)**	



TM = Technical Management | HQ = NASA HQ & Mission Directorate | LD = Launch Director | LSP = LSP Mgmt

LSIM = Launch Site Integration Manager | LSTO = LSTO (Mini Source Board) | LV = Launch Vehicle Contractor | MM = Mission Manager

PIM = Program Integration Manager | SC = Spacecraft Project | SMA = Safety & Mission Assurance

John F. Kennedy Space Center

GLAST Mission Management

Bruce Reid

LAUNCH SERVICES PROGRAM

Mission	GLAST
Launch Date	2008/02/05
Orbit Requirement	565 km Circ 28.5 deg
Launch Vehicle Class	Delta II
Launch Period Window	Day to Day 45 min of sunlight after S/C separation
PPF	ASO-KSC
Mass (kg)	NTE 4627
PAD	SLC-17 B

	Feb	Mar	Apr
ICD	G	G	G

SIGNED SCNS:		SCNS IN REVIEW	
SCN #	**DATE SIGNED**	**SCN #**	**DATE SIGNED**
3d1	10/31/2006	19d4	
7d2	01/04/2007	26d4	
8d1	09/29/2006	32d4	
9d1	10/31/2006		
10d1	10/31/2006		
1d4	03/02/2007		
4d3	02/15/2007		

Observatory Status

	Feb	Mar	Apr
Observatory Status	G	G	G
Schedule	Y	Y	G
Budget	G	G	G
Deliverables	G	G	G
Testing	G	G	G
ATLO	G	G	G
Instrument	G	G	G

Launch Vehicle Status

Integrated Schedule	G	G	G
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	G	G	Y
Ground Stations	0	0	G
Deployables	0	0	0
P-3/OTTR	0	0	0

Mission Center:	GSFC
Program:	GLAST
PM	K. Grady
LVI	M. Goeser
MM	Bruce Reid
IE	Diana Calero
LSIM	Tom Rucci
PIM	Benjamin Studenski
MAM	Bob Henry
MCE	Marty Lougheed
MTE	Nathan Wood

Sensitive But Unclassified

2d3	01/04/2007
13d1	02/15/2007
14d3	03/02/2007
15d2	03/02/2007
12d4	03/27/2007
5d1	04/19/2007
16d5	01/26/2008
20d1	06/22/2007
17d5	06/11/2007
18d1	07/19/2007
11d3	01/08/2008
22d1	08/13/2007
21d1	09/11/2007
23d2	12/19/2007
24d5	02/05/2008
25d1	09/11/2007
27d3	02/07/2008
28d1	11/01/2007
29d2	02/14/2008
30d1	02/11/2008
31d4	04/01/2008
33d4	04/10/2008

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GLAST - Engineering

Diana Calero

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	R	Y	R
Payload Fairing	G	G	G
First Stage	Y	Y	G
Second Stage	G	G	G
Third Stage	N/A	N/A	N/A
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	Y	Y	G
Certification	0	N/A	N/A
Mission Analysis	R	Y	G
ERS/ERB	R	Y	R
Launch PAD/GSE	G	G	G
Mission Unique IV&V	G	G	G

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	107
VERIFIED TO DATE	12

LAUNCH PAD / GSE MODS (IF APPLICABLE)

Directed battery cooling design/modifications

MISSION UNIQUE STUDIES (IF APPLICABLE)

There are none.

John F. Kennedy Space Center

GLAST - Mission ERB Status

Diana Calero

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	05-137	GLAST MECO Assessment	☐	☑	☐	☑	☑	☐	☑	☑
G	05-286	Delta 7920H-10C ER Type 1 Analysis	☑	☐	☑	☐	☐	☐	☐	☐
G	06-086	GLAST Mission ICD Review	☑	☐	☑	☐	☐	☑	☑	☑
G	06-124	GLAST T-0 Battery AC System	☑	☐	☑	☐	☐	☑	☑	☐
G	07-54	GLAST Special Instrumentation	☑	☐	☑	☐	☐	☐	☐	☐
G	04-152	STSS/PACS Prelaunch Cooling	☑	☐	☑	☐	☐	☑	☑	☐
G	07-122	GLAST Hardware Reviews	☐	☑	☐	☑	☑	☑	☑	☐
G	07-353	GLAST PAF Fitcheck Violation	☑	☐	☑	☐	☐	☐	☐	☐
G	08-24	RF & Lightning Detection System (RFDS-LDS)	☐	☑	☐	☑	☑	☐	☐	☐
G	08-76	GLAST Separation Switch Close Approach	☐	☑	☐	☑	☐	☐	☐	☐
G	08-89	GLAST Battery Coolant Failure	☐	☑	☐	☑	☐	☐	☐	☐

John F. Kennedy Space Center

GLAST - Vehicle ERB Status

Diana Calero

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	04-474	792X Transonic Observation	☑	☐	☑	☐	☐	☑	☐	☐
G	05-378	Delta II, RS-27 Engine -51 Hoop/Band Separation	☑	☐	☑	☐	☐	☐	☑	☐
G	06-284	Delta II 2nd Stage Tanks	☑	☐	☑	☐	☐	☑	☑	☑
G	07-53	DMCO On-Pad Initiative	☑	☐	☑	☐	☐	☑	☐	☐
G	07-263	Delta II Heavy Aerodynamic Drag Database Update	☑	☐	☑	☐	☐	☑	☑	☑
G	08-05	DAWN Transonic Flight Reconstruction and Model Verification	☑	☐	☐	☑	☐	☐	☐	☐
G	07-366	COSMO-2 1st Stage Engine Mixture Ratio Observation	☑	☐	☐	☑	☐	☐	☐	☐
R	07-40	Goodrich Analysis of Leach and Tyco Relay Failures	☑	☐	☑	☐	☐	☐	☐	☐
Y	07-308	Delta II GG TLX Output Failure	☑	☐	☑	☐	☐	☐	☐	☐
G	08-50	SLC-17B Crane Rope Issue	☐	☑	☐	☐	☑	☐	☐	☐
G	06-28	C Band and S Band RF Spike at Fairing Separations	☐	☑	☐	☐	☑	☐	☐	☐
G	08-40	Secondary latch cable material change to CRES	☐	☑	☐	☐	☑	☐	☐	☐
G	08-88	GLAST 2nd stage erection incident	☑	☐	☑	☐	☐	☐	☐	☐
G	08-90	GLAST Interstage ovality out of tolerance	☐	☑	☐	☐	☑	☐	☐	☐
G	08-93	Engine Section RTU Failure Analysis (GSP IIR-20)	☐	☑	☐	☐	☑	☐	☐	☐
Y	08-96	ISDS Destruct TLX Scrapped Hardware Discrepancy	☑	☐	☐	☑	☐	☐	☐	☐

G	08-95	LM148 Popcorn Noise RGEA	☐	☑	☐	☐	☑	☐	☐	☐

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GLAST - Launch Site

Tom Rucci

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	G	G	0

LSSP	Planned	Released
Preliminary	08/01/2006	09/29/2006
Baseline	04/12/2007	08/27/2007

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	0

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	0
Training and Personnel Cert	G	G	0
Contingency Plans	G	G	0
Safety LSIM	G	G	0
Radiation Control	N/A	N/A	0
Operational Plans	G	G	0

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	0
Control of S-Band @ 2086-2126 MHz and GPS 1555-1595 MHz to 1 volt /meter	G	G	0
TDRS Trailer Staging @ ASO	G	G	0
PPF	G	G	0
Astrotech - Commercial IDIQ	G	G	0
Spacecraft OPS	G	G	0
AE Office Space - for pad Ops	G	G	0

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GLAST Budget Breakdown

Benjamin Studenski

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.
* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

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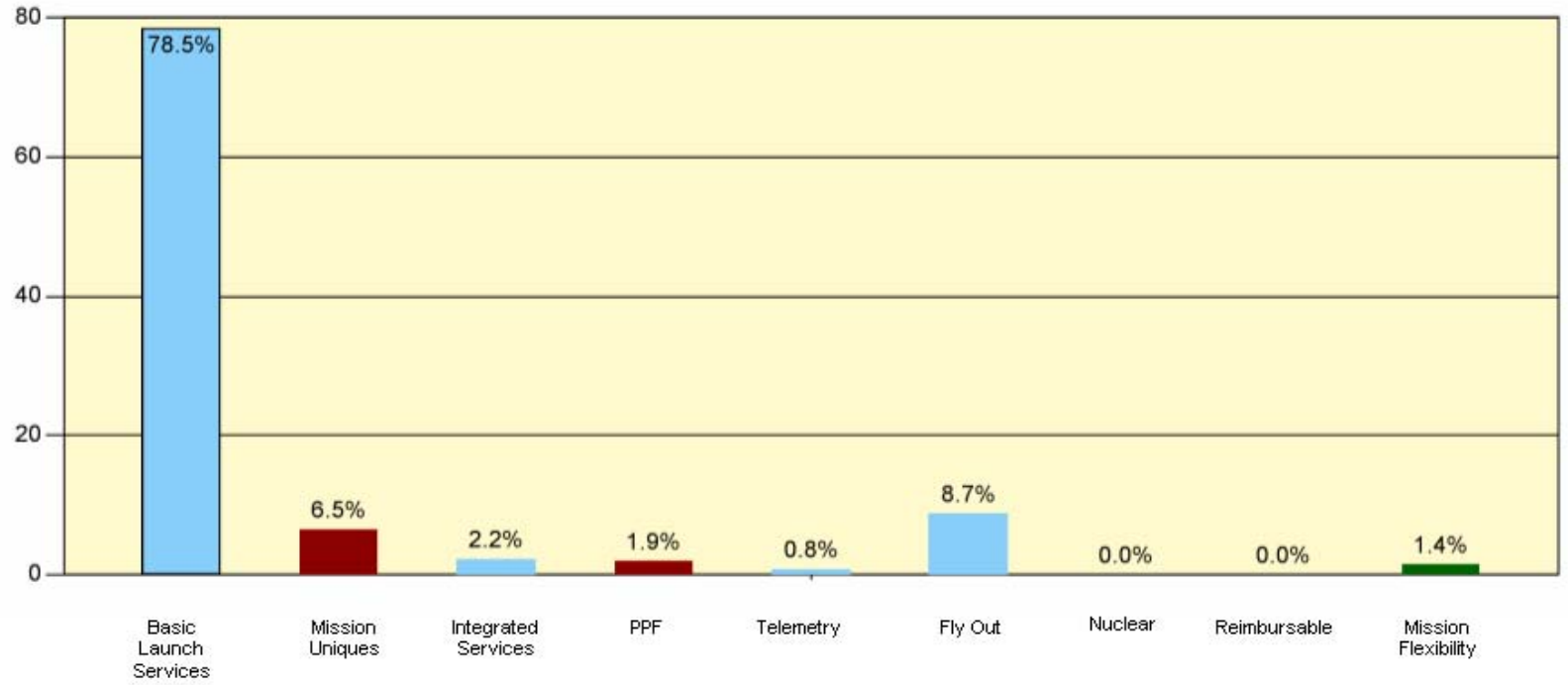
Launch Services Budget Breakdown

GLAST Mission

Benjamin Studenski

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Mission has 0 days of grace remaining and the next notification point for a potential launch delay is 05/05/2008 for either Government or Contractor (L-10 Days + 1 Day)

Sensitive But Unclassified

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GLAST - Business

Benjamin Studenski

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone #1	Sep 7 2005
Milestone #2	Dec 7 2005
Milestone #3	Mar 7 2006
Milestone #4	Jul 7 2006
Milestone #5	Sep 7 2006
Milestone #6	Dec 7 2006
Milestone #7	June 14 2007
Milestone #8	Nov 05 2007
Milestone #9	May 16 2008

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services

Contract Mod	Number	Description
	59	NSS 20.3.4 Final Design Load Cycle FDLS
	73	NSS 20.2 additional MIWG
	111	NSS 20.3.4 Second Final Design Load Cycle FDLC
	119	NSS 20.2 Support for MIWG
	181	NSS 20.2 Early MIWG held 08/02/05
	184	NSS 26.1 Cat 1 Core Vehicle Analysis
	190	ATP GLAST Mission
	228	NSS 20.3.2 Preliminary Trajectory Analysis
	190	NSS 11.2 Enhanced fairing internal cleaning
	190	NSS 20.1 Pedigree review

Contract Mod	Number	Description		
	190	NSS 30.2.4 Additional support for final design load cycle		
	190	NSS 9.1.1 Two 61 pin connectors		
	190	NSS 11.1 Enhanced fairing environment		
	287	NSS 35.1 Additional Console Notebooks (CCR NLS-B 241), L-6		
	024	ATP Commercial Payload Processing		
	311	NSS 36.1 Telemetry Acquisition Assistance Messages		
Contract Mod (LD)	Number	Description		
	244	Delay from 9/7/2007 to 10/7/2007		
	119	Delay from 9/30/06 to NET 2/28/07		
	155	Delay from 2/28/07 to NET 5/28/07		
	171	Delay from 5/28/07 to 9/7/07		
	279	Delay from 10/7/2007 to 12/14/2007		
	289	Delay from 12/14/2007 to NET 1/31/2008		
	301	Delay from NET 1/31/2008 to 2/5/2008		
	309	Delay from 2/5/2008 to 5/16/2008		
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-057	Rerun CLA	06/30/2003	10/16/2003
	NLSB-074	Second re-run coupled load analysis	09/30/2003	06/01/2004
	NLSB-091	CG Lateral Load limit vs. Mass analysis	01/31/2004	04/07/2004
	NLSB-096	61 Pin Connector	06/30/2004	12/10/2004
	NLSB-126	Distributed Aerodynamics Coefficiient	07/27/2004	12/10/2004
	NLSB-137	TPAF Shipment & Inspection	12/06/2004	01/07/2005
	NLSB-149	TPAF Inspection at GD/SASS	01/20/2005	03/08/2005
	NLSB-185R2	Gas Budget Analysis	05/19/2006	06/26/2006
	NLSB-188R1	TPAF mod to incorp switch pad	06/19/2006	08/21/2006
	NLSB-204	2nd Stage AC Ducting (GSE shared with STSS)	08/01/2006	03/03/2008
	NLSB-206	PAF Cleaning	10/01/2007	
	NLSB-214	2nd Stage AC Ducting	09/2/2007	01/08/2008
	NLSB-236	Battery Cooling proposal Prep	12/01/2005	9/18/2006

Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-240	EMC/EMI Analysis	11/30/2006	01/19/2007
	NLSB-268	GLAST Special Instrumentation (no cost to GLAST mission budget)	03/07/2008	03/07/2008
	NLSB-269	Drill Template Shipment (no cost)		
	NLSB-271	Special Instrumentation 6915 PAF (no cost to GLAST mission budget)		
	NLSB-275	Fairing Extension Cable Modification	09/14/2007	01/08/2008
	NLSB-295	Secondary Latch Clips	08/11/2007	01/08/2008
	NLSB-296	TPAF Inspection	7/06/2007	01/08/2008
	NLSB-300	RS-27 Engine Pedigree Review	12/31/2007	03/10/2008
	NLSB-302	Additional ITA Effort	10/22/2007	01/08/2008
	NLSB-305R3	Lightning Detection System/RF Detection System	04/16/2008	
	NLSB-306	Proposal Prep for cancelled Flight Force Modeling Analysis (no cost to GLAST mission budget)		
	NLSB-311	GLAST DTO Update	03/31/08	
	NLSB-318R1	Fiber Optic Interface Support at Pad 17B	06/17/2008	
	NLSB-323	Launch Vehicle Collision Avoidance Analysis Support	04/30/2008	
Contract Mod (PPF)	Number	Description		
	024	ATP Payload Processing Task Order		
Contract Mod (Other)	Number	Description		
	057	NSS 30.1 Flyout Costs		
	085	NSS 30.1 Flyout Costs		
	198	Flyout Costs		
	240	Flyout Costs		
There are no Issues.				

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GLAST - Safety and Mission Assurance

Bob Henry

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	Y	Y
Software / Hardware Problems	☐	☑	Continuing to monitor ULA-Boeing's response to Quality Management System risk.	Y	Y	Y
Alerts	☐	☑	No GIDEPs at this time	G	G	G
Audits/Inspections/Surveillances	☐	☑	No Issues at this time	G	G	G
Limited Life Items	☐	☑	No Issues at this time	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	☑	☐	We have completed reliability analyses to generated the required reliability inputs for the SARR.	G	G	G
Reliability Assessments	☐	☑	No significant issues	G	G	G
Safety				G	G	G
Requirements Definitions	☑	☐	Tailoring complete	G	G	G
Range Safety & Mission Flight Rules	☐	☑	Under Review NASA/AF	G	G	G
Licenses/Use Authorizations	☑	☐	Use Authorizations approved	G	G	G
Safety Documentation	☐	☑	Final MSPSP approved with resolution of comments	G	G	G
Non-compliances	☐	☑	None identified to date	G	G	G
Contingency Planning	☐	☑	MPCP in work	G	G	G
Mission Assurance				Y	Y	G
Lessons Learned	☐	☑	No issues	G	G	G
First Flight/Mission Unique items	☐	☑	No issues	G	G	G
Test/Qualification/Certification	☐	☑	No issues	G	G	G
Mission Assurance Assessments	☐	☑	Alenia 2nd-Stage Oxidizer Leak - tank assessment completed. Risk submitted and approved by LSP Program.	Y	Y	G
Risk Management	☐	☑	No Issues	G	G	G

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GLAST Comm & Telemetry

Marty Lougheed and Nathan Wood

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	G	G	G
Data Comm	G	G	G
Networks	G	G	G
Video Comm	G	G	G
Timing	G	G	G
RF Comm	G	G	G
LSSP Comm Annex	G	G	G

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

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NOAA-N' (Prime) Project Summary

LAUNCH SERVICES PROGRAM

Mission	NOAA-N' (Prime)
Launch Date	2009/02/01
Launch Vehicle	Delta II
Launch Period Window	TBD
PPF	1610

OVERALL MISSION

Feb	Mar	Apr
G	G	G

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	Y	Y	Y
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	G	Y	Y
Mission Specific	G	G	G
Certification	N/A	N/A	N/A
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY			
Communications	0	0	0
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	G	G	G
Deployables	0	0	0
P-3/OTTR	0	0	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

Sensitive But Unclassified

NOAA-N' (Prime) - Open/Accepted Risks

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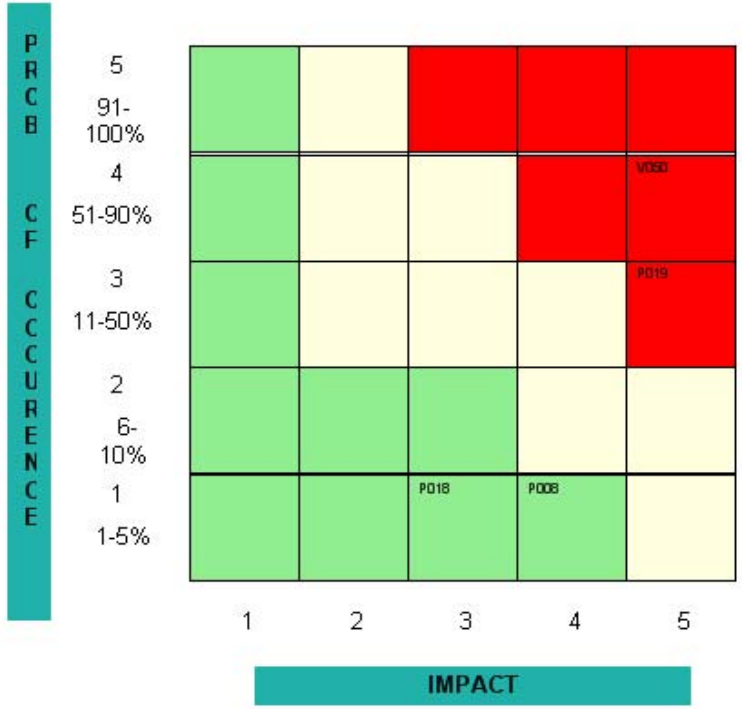
LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
0	P019	USAF must fly out 4 Delta II GPS by the end of the FY 2008 to avoid USAF Program impacts.
		NASA FPB Manifest dates may be required to move to provide GPS priority.
0	V050	Dawn experienced a significant delay very late in the hardware production process that delayed the launch readiness date. The same contributing causes exist for other NASA missions. In addition, ULA just in time delivery approach provides little margin to hardware need dates.
		Late production of LV hardware causes a slip in the launch date.
0	P018	Traditional DMCO Testing (Bldg AO on CCAFS) on Commercial and NASA Delta II launch vehichles will be eliminated. Required testing that has historically been performed in DMCO will be transferred to the launch pad as part of the DMCO On-Pad Initiative.
		Elimination of traditional DMCO Testing will not allow for capturing hardware failures off-pad and thus introduce potential for on-pad schedule delays of more than one key milestone if hardware fails during pad testing.
0	P008	The current NLS statement of work for SLC-2 places approval authority for all changes to pad maintenance in the Contractor's hands, and specifically excludes NASA approval.
		Reduced maintenance levels may results in equipment failure that forces NASA to fund unplanned repairs or replacements.



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NOAA-N' (Prime) - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

There are no Actions.

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	Y	2nd stage tank must be cleared for potential to leak. Near term tanks will be inspected per THEMIS procedure. WI held open until long term inspection procedure is established. NOAA-N Prime tank is now first to use click bond procedure.	ERS-06-284	11 Jul 06	16 May 08
Mission Management	0	EEB modification plan to meet customer requirements has been submitted by ULA and evaluated by Engineering Selection and implementation plan in-work	WI	09/11/2007	11/30/2007
Mission Management	G	NOAA-N Prime manifested for 2009. No range conflict at this time.	P019		
Mission Management	G	NOAA-N Prime launch vehicle is being built well ahead of the need date and stored. There exists plenty of margin in the schedule.	V050		
Mission Management	G	Several missions will use on pad DMCO before NOAA-N Prime. Problems with the new method of testing should be identified before this mission enters the launch campaign.	P018		

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NOAA-N' (Prime) - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Final Payload Compatibility Drawing relased	15 June 06
Draft Preliminary LSSP distributed	2 March 06
PAF to GS fitcheck at Decatur	12 July 06-13 July 06
RF Hazard Analysis	22 May 06
ICD Released	21 June 06
ARAR Initial Release	28 Feb 07
MIWG #5 / GOWG #2 at SLC-2 B1628	20 mar 07-20 Mar 07
Launch moved to Feb 1, 2009	31 Jan 07
Preliminary LSSP Release	2 March 06-21 Dec 07
Launch Base Integrated Ops Team TIM	week of 6/25-26 June 06
PAF to GS fitcheck 2 at Decatur	29 Aug 07-31 Aug 07
ARAR Final Release	28 Sept 07-18 Oct 07
Launch Base Integrated Ops Team Meeting	Dec 07-10 Jan 08
Payload to Blockhouse Wiring Diagram	21 Nov 07-21 Apr 08
VLC complete	18 Dec 07
GOWG at VAFB	12-13 Mar 08-12-13 Mar 08
SC officially in storage.	5 Mar 08

Planned	
Release Baseline LSSP	May 08

BOSS NOAA-N' (Prime) Schedule

LSP-F-330.02 Basic

4/16/08

ID	WBS	Name	Resp.	2007 A S O N D	2008 J F M A M J J A S O N D	2009 J F M A M
1		**BOSS NOAA-N' (Prime) Schedule**	8/1		11/6	
2		**LV & SC Engineering & Manufacturing Phase (~L-27 months to ~L-3**	8/1		11/6	
3		START PHASE		9/25		
4	4.3.7	LV Mfg	LV		1/31 2/27	
5	4.3.8	"LV Contractor Internal MRR (e.g., MRB or VSTR)"	LV		2/28 3/26	
6	4.3.9	Define SC Testing	SC		1/25 2/21	
7	4.3.10	SIR	SC		2/21	
8	4.3.11	S/C Testing	SC		2/22 3/20	
9	4.3.12	Provide S/C CDRL Input	SC		2/22 3/20	
10	4.3.13	Develop Launch Site Operations Plan	SC		12/27 1/23	
11	4.3.14	S/C Final MSPSP	SC		1/24 2/20	
12	4.3.15	Develop Launch Site Procedures	SC		2/22 3/20	
13	4.3.16	CDRL Review	TM		12/19 1/15	
14	4.3.17	Mission Unique IV&V	TM		1/16 2/12	
15	4.3.18	Publish Preliminary Launch Site Support Plan	LSIM	9/26 10/23		
16	4.3.19	"Exercise all TA's, NSS, Mods to contract to meet needs"	PIM			
17	4.3.20	Procure PPF via Payload Process Task Order	PIM	10/24 11/20		
18	4.3.21	PRD/OR	LSIM	11/20		
19	4.3.22	Review LV Mission Unique MSPSP	SMA	9/26 10/23		
20	4.3.23	Mission Support Analysis	TM	8/31 8/31		
21	4.3.24	Verify ICD	TM	8/31 9/14		
22	4.3.25	HAR/MSR equivalent	LV		2/28 3/26	
23	4.3.26	Develop LV/SC & Integrated LS Procedures	LV		3/27 4/23	
24	4.3.27	LV Components arrives at Launch Site	LV		4/24 5/21	
25	4.3.28	Publish Baseline LSSP	LSIM	11/21 12/18		
26	4.3.29	GOWG	LSIM	11/20		
27	4.3.30	Prepare PPF & services for GSE/SC arrival	LSIM	12/19 1/15		
28	4.3.31	Comm & Telemetry Reviews	LSIM	1/16 2/12		
29	4.3.32	Review S/C Final MSPSP	SMA	10/24 11/20		
30	4.3.33	GOR	LSIM		9/30	
31	4.3.34	Process Launch Delays as needed	PIM			
32	4.3.35	Track Milestone Payments	PIM			
33	4.3.36	Procure Deployable & Fixed Telemetry Assets	PIM			
34	4.3.37	Begin Access Badging & Training	LSIM		7/1 8/18	
35	4.3.38	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev, Des Rev, Qual)"	TM 8/1		10/2	
36	4.3.39	Payload-LV Fitcheck	TM		8/28 9/24	
37	4.3.40	MIWG	MM		3/12	
38	4.3.41	Safety TIMS PSWG	SMA		3/12	
39	4.3.42	S/C PreShip Review	SC		9/11	
40	4.3.43	S/C Ships	SC		10/15 11/6	
41	4.3.44	Phase Close-Out	MM		11/6	

TM = Technical Management
HQ = NASA HQ & Mission Directorate
LD = Launch Director
LSP = LSP Mgmt
LSIM = Launch Site Integration Manager
LSTO = LSTO (Mini Source Board)
LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

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NOAA-N' (Prime) Mission Management

Dave Breedlove

LAUNCH SERVICES PROGRAM

Mission	NOAA-N' (Prime)
Launch Date	2009/02/01
Orbit Requirement	Alt./7237 km / Incl-98.73 deg
Launch Vehicle Class	Delta II
Launch Period Window	TBD
PPF	1610
Mass (kg)	(SC + PAF)
PAD	SLC-2

	Feb	Mar	Apr
ICD	G	G	G

Observatory Status

	Feb	Mar	Apr
Observatory Status	G	G	G
Schedule	G	G	G
Budget	G	G	G
Deliverables	G	G	G
Testing	G	G	G
ATLO	G	G	G
Instrument	G	G	G

Launch Vehicle Status

	Feb	Mar	Apr
Integrated Schedule	G	G	G
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	G	G	G
Ground Stations	G	G	G
Deployables	0	0	0
P-3/OTTR	0	0	0

Mission Center:	GSFC
Program:	NOAA - POES
PM	Wayne McIntyre
LVI	Jerry Nagy
MM	Dave Breedlove
IE	Eric Poole
LSIM	Tricia Fertig
PIM	Walner Thervil
MAM	Ken Hale
MCE	Ralph Mikulas
MTE	Mike Patton

SIGNED SCNS:		SCNS IN REVIEW	
SCN #	**DATE SIGNED**	**SCN #**	**DATE SIGNED**
001	09/29/2006	006	
002	09/29/2006	007	in review
003	09/29/2006		
004	09/29/2006		
005	09/29/2006		
008	08/06/2007		
009	08/08/2007		

NOAA-N' (Prime) - Engineering

Eric Poole

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LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	G	Y	Y
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	Y	Y	Y
Third Stage	N/A	N/A	N/A
Payload Attach Fitting	G	G	G
Other	G	G	G
Mission Specific	G	G	G
Certification	N/A	N/A	N/A
Mission Analysis	G	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	132
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)

There are none.

MISSION UNIQUE STUDIES (IF APPLICABLE)

There are none.

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NOAA-N' (Prime) - Mission ERB Status

Eric Poole

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	06-046	NOAA-N' ICD review	☑	☐	☑	☐	☐	☑	☑	☑
G	07-177	NOAA-N Prime Dual Inhibits Waiver	☑	☐	☑	☐	☐	☑	☑	☐

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NOAA-N' (Prime) - Vehicle ERB Status

Eric Poole

[redacted] LAUNCH SERVICES PROGRAM [redacted]

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	05-378	RS-27 Engine-51 Hoop/Band Separation	☑	☐	☑	☐	☐	☐	☐	☐
Y	06-284	2nd Stage Tank Leak Anomaly	☑	☐	☑	☐	☐	☐	☐	☐

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NOAA-N' (Prime) - Launch Site

Tricia Fertig

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	12/1/2007	12/21/07
Baseline	7/1/2008	

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
GN2 Passive Cooling at SLC-2	G	G	G
PPF	G	G	G
Spacecraft OPS	G	G	G

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NOAA-N' (Prime) Budget Breakdown

Walner Thervil

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
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* **Integrated Services**
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  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.
* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

John F. Kennedy Space Center

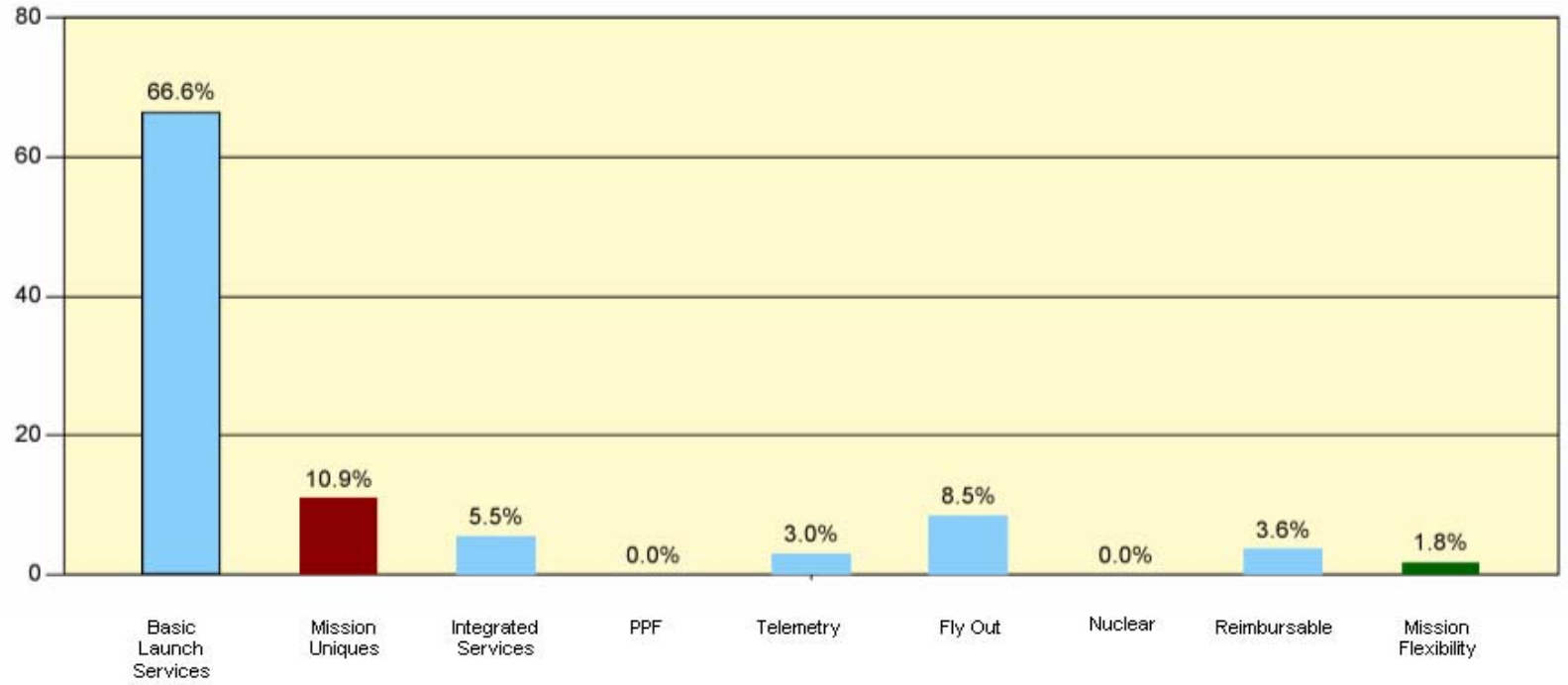
Launch Services Budget Breakdown

NOAA-N' (Prime) Mission

Walner Thervil

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Variance: The mission flexibility increases by 3.5% from the previous quarter report. Launch Vehicle will be in storage for only 3 months therefore the storage reduced considerably. The revised MCRD reflected a 7/1/2008 starting date for storage.

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NOAA-N' (Prime) - Business

Walner Thervil

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone 1	6/30/2003
Milestone 2	4/30/2004
Milestone 3	5/1/2006
Milestone 4	8/1/2005
Milestone 5	11/1/2005
Milestone 6	3/1/2006
Milestone 7	7/1/2006
Milestone 8	12/1/2007
Milestone 9	2/1/09

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services		
Contract Mod	Number	Description
	72	Mission ATP w/ NSS 27.1 Western Range Launch & MUS 9.1 One-time Multi Trajectory/Multi Azimuth Scope Reduction
	80	Customized payment schedule
	258	Request NSS 25.2.1 Monthly Storage and NSS 25.2.2 (CY08 and CY09) per Vehicle Charge.
	157	Add launch readiness date of October 31, 2006 and request storage prices
	309	NSS 35.2 Additional 40 Mission Console Notebooks for VAFB Launches
	322	Change NOAA-N' Mission Call Readiness Date (MCRD) from December 1, 2007 to July 1, 2008.
Contract Mod (LD)	Number	Description
	82	Launch Delay from 06/03/2005 to 10/30/2005
	93	Launch Delay from 10/30/2005 to 01/30/2006

Contract Mod (LD)	Number	Description		
	117	Launch Delay from 01/30/2006 to NET 12/2007		
	274	Launch Delay from NET 12/2007 to 02/1/2009		
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	ML-029	Compat with Delta II Review - NOAA-N'	1/02/1997	2/03/1997
	NLSB-232 R3	Access platform concept study	4/30/2007	7/10/2007
	NLSB-238 R1	Explosion-proof telephone at SLC-2	11/15/2006	11/20/2006
	NLSB-252 R2	EEB Temperature Control Concept Study	7/01/2007	1/08/2008
	NLSB-267	Vehicle Modification for Payload fairing Re-Radiation System	1/01/2009	
	NLSB-320	SLC-2 Level 5 and Level 6 Access Platform Build and Install	11/16/2008	
	NSLB-324	Payload Fairing Storage Support Equipment Capability	7/31/2008	
There are no PPF Contract Mods				
There are no Other Contract Mods				

	Issues
Y	Mission has 0 (zero) day of grace remaining.

John F. Kennedy Space Center

NOAA-N' (Prime) - Safety and Mission Assurance

Ken Hale

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	Y	Y
Software / Hardware Problems	☐	☑	Continuing to monitor ULA-Boeing's response to Quality Management System risk	Y	Y	Y
Alerts	☐	☑	No significant issues being tracked.	G	G	G
Audits/Inspections/Surveillances	☐	☑	No significant issues being tracked. Will pursue DCMA coverage of Pueblo operations.	G	G	G
Limited Life Items	☐	☑	No significant issues being tracked.	G	G	G
Reliability				G	G	G
FMEA	☐	☑	No significant issues being tracked.	G	G	G
Reliability Assessments	☐	☑	S/C RF inhibit reliability review is complete. SMA agrees with the GSFC assessment. Negligable impact to the overall Launch Vehicle reliability.	G	G	G
Safety				G	G	G
Requirements Definitions	☐	☑	S/C RF inhibit assessment is complete. Safety agrees with ICD waiver to dual RF inhibit requirement.	G	G	G
Range Safety & Mission Flight Rules	☐	☑	No significant issues being tracked	G	G	G
Licenses/Use Authorizations	☐	☑	No significant issues being tracked	G	G	G
Safety Documentation	☐	☑	Spacecraft ARAR review complete. Will assess operations to be performed in Pueblo.	G	G	G
Non-compliances	☐	☑	No significant issues being tracked	G	G	G
Contingency Planning	☐	☑	No significant issues being tracked	G	G	G
Mission Assurance				Y	Y	Y
Lessons Learned	☐	☑	No significant issues being tracked.	G	G	G
First Flight/Mission Unique items	☐	☑	No significant issues being tracked.	G	G	G
Test/Qualification/Certification	☐	☑	No significant issues being tracked.	G	G	G
Mission Assurance Assessments	☐	☑	Tracking Alenia tank issues	Y	Y	Y
Risk Management	☐	☑	Alenia tanks are yellow for Delta-II. Tank assigned to NOAA-N' will be evaluated along with any potential risk. Mission Assurance agrees with ICD waiver to dual RF inhibit requirement.	Y	Y	Y

John F. Kennedy Space Center

NOAA-N' (Prime) Comm & Telemetry

Ralph Mikulas and Mike Patton

	Feb	Mar	Apr
Communications	0	0	0
Voice Comm	0	0	0
Data Comm	0	0	0
Networks	0	0	0
Video Comm	0	0	0
Timing	0	0	0
RF Comm	0	0	0
LSSP Comm Annex	0	0	0

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

NPP Project Summary

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Mission	NPP
Launch Date	2009/09/01
Launch Vehicle	Delta II
Launch Period Window	Daily
PPF	Commercial PPF

OVERALL MISSION

Feb	Mar	Apr
G	G	G

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	Y	G	G
Manifest/Range	G	G	G
Integrated Schedule	G	G	G
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	G

LAUNCH SITE	Feb	Mar	Apr
LSSP	Y	Y	Y
Customer Inputs	Y	Y	Y
PPF	Y	Y	Y
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	Y	Y	Y
Safety	G	G	G
Quality	Y	Y	Y
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	0	G	G
Mission Specific	0	G	G
Certification	0	0	0
Mission Analysis	0	G	G
ERS/ERB	0	G	G
Launch PAD/GSE	0	G	G
Mission Unique IV&V	0	0	0

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	0	0	0

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	0	0	0
Deployables	0	0	0
P-3/OTTR	0	0	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

Sensitive But Unclassified

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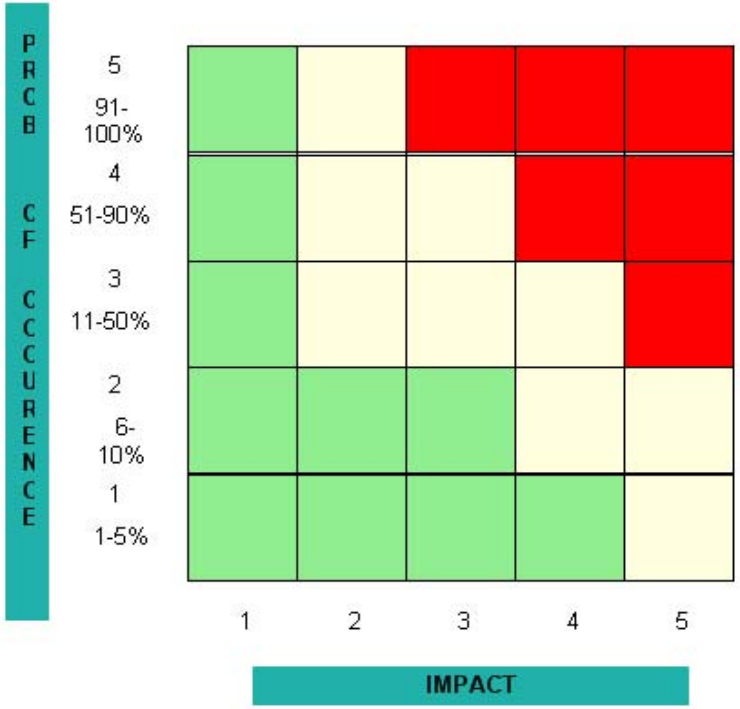
NPP - Open/Accepted Risks

LAUNCH SERVICES PROGRAM

There are no Risks.



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NPP - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

There are no Actions.

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	0	Separation switches are not clocked per the standard location; they are rotated 90 degrees.	WI		
Engineering	0	Potential VLC disconnect	WI		
Business	0	Launch has delayed to 9/1/2009 timeframe. Need to assess cost impact to include shelf life (19 pack period of perf.) last users of Delta II pads, and other issues.	WI	08/01/2006	05/30/2008

John F. Kennedy Space Center

NPP - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Early CLA	
Preliminary IRD received, latest rev March 2005	
Kick off meeting	
Fairing Door inputs	
S/C Mission Ops Review	08/15/2005-08/17/2005
Fairing Clearance analysis and Compatibility Drawing Review comple	
Received Draft IRD	11/01/2007

Planned	
Preliminary ICD release	07/31/2008

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NPP Mission Management

Bruce Reid

LAUNCH SERVICES PROGRAM

Mission	NPP
Launch Date	2009/09/01
Orbit Requirement	196 deg. flight azimuth
Launch Vehicle Class	Delta II
Launch Period Window	Daily
PPF	Commercial PPF
Mass (kg)	2206 kg
PAD	Other

	Feb	Mar	Apr
ICD	G	G	G

There are no signed SCNs	There are no SCNs in Review

Observatory Status	Feb	Mar	Apr
Observatory Status	Y	G	G
Schedule	G	G	G
Budget	G	G	G
Deliverables	G	G	G
Testing	Y	G	G
ATLO	Y	G	G
Instrument	Y	G	G

Launch Vehicle Status			
Integrated Schedule	G	G	G
CDRLs (S/C & LSC)	G	G	G
Manifest/Range	G	G	G
Ground Stations	0	0	0
Deployables	0	0	0
P-3/OTTR	0	0	0

Mission Center:	GSFC
Program:	EOS-NPOESS
PM	Ken Schwer
LVI	T.Jones / S.Antoniak
MM	Bruce Reid
IE	Norman Beck, Jr.
LSIM	Tricia Fertig
PIM	Benjamin Studenski
MAM	Ken Hale
MCE	Ralph Mikulas
MTE	Tuan Doan

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NPP - Engineering

Norman Beck, Jr.

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	0	G	G
Payload Fairing	0	Y	Y
First Stage	0	G	G
Second Stage	0	G	G
Third Stage	0	N/A	0
Payload Attach Fitting	0	G	G
Other	0	0	0
Mission Specific	0	G	G
Certification	0	0	0
Mission Analysis	0	G	G
ERS/ERB	0	G	G
Launch PAD/GSE	0	G	G
Mission Unique IV&V	0	0	0

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)

There are none.

MISSION UNIQUE STUDIES (IF APPLICABLE)

There are none.

John F. Kennedy Space Center

NPP - Mission ERB Status

Norman Beck, Jr.

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
0	04-17	NPP MECO Assessment	☐	☑	☐	☑	☑	☐	☐	☐

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NPP - Vehicle ERB Status

Norman Beck, Jr.

There are no Vehicle ERBs for this mission.

John F. Kennedy Space Center

NPP - Launch Site

Tricia Fertig

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	Y	Y	Y

LSSP	Planned	Released
Preliminary	5/1//2008	
Baseline	1/1/2009	

	Feb	Mar	Apr
CUSTOMER INPUTS	Y	Y	Y

DELIVERABLES	Feb	Mar	Apr
Security and Badging	0	0	0
Training and Personnel Cert	0	0	0
Contingency Plans	0	0	0
Safety LSIM	Y	Y	Y
Radiation Control	0	0	0
Operational Plans	0	0	0

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
PPF	Y	Y	Y
Spacecraft OPS	G	G	G

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NPP Budget Breakdown

Benjamin Studenski

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicl Services provided by this contract. This line item is firm fixed proce and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.
* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

John F. Kennedy Space Center

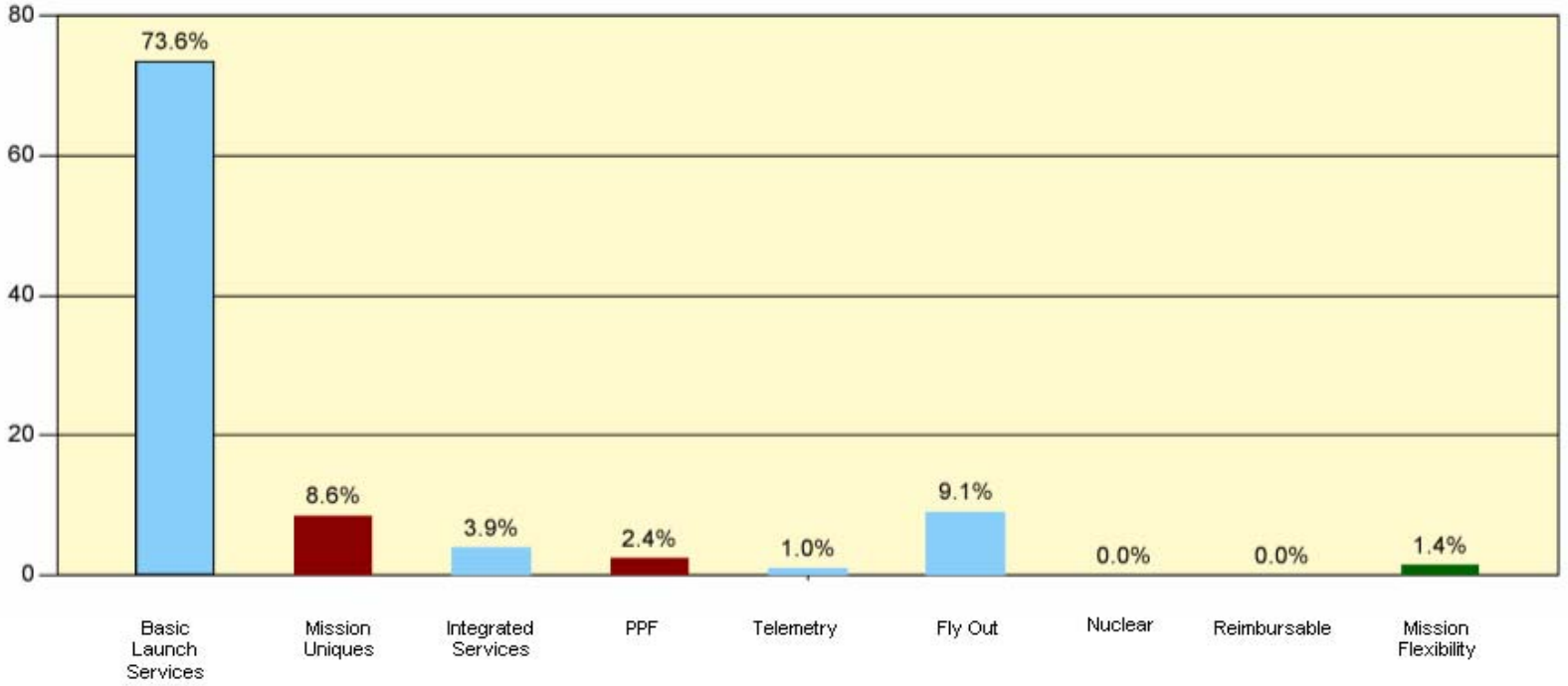
Launch Services Budget Breakdown

NPP Mission

Benjamin Studenski

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Note: Variance: Open Equitable Adjustment claims for the delay to 4/30/2009, and for the delay to 9/1/2009.
Mission has 0 days of grace remaining and all future delays are subject to Equitable Adjustment claims by the contractor.

John F. Kennedy Space Center

NPP - Business

Benjamin Studenski

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone 1	07/31/2004
Milestone 2	10/31/2004
Milestone 3	01/31/2005
Milestone 4	04/30/2005
Milestone 5	12/01/2005
Milestone 6	09/01/2008
Milestone 7	12/01/2008
Milestone 8	03/01/2008
Milestone 9	06/01/2009
Milestone: 10	09/01/2009

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services				
Contract Mod	Number	Description		
	062	NSS 20.3.3: Quick Turnaround Coupled Load Analysis		
	084	NSS 9.1.1: Two 61 Pin Electric Interface from Fairing to Payload		
	162	MU (1): Remove Re-Radiating System from Mission Uniques		
	141	NSS 10.1: Remove camera NSS		
	129	CLIN 14 NPP ATP		
	287	NSS 35.2 Additional Console Notebooks		
Contract Mod (LD)	Number	Description		
	171	Delay from 10/31/06 to NET 3/1/07		
	206	Delay from 3/1/07 to 4/30/09		
	323	Delay from 4/30/2009 to 9/1/2009		
Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	NLSB-037R1	CLA Time Histories	10/31/2003	11/30/2003
	NLSB-121	TPAF Mods	11/26/2004	12/02/2004
There are no PPF Contract Mods				
Contract Mod (Other)	Number	Description		
	057	Flyout costs		
	085	Flyout costs		
	125	Flyout costs		
	198	Flyout Costs		

	Issues
G	Equitable Adjustment amount being negotiated for launch delay to 9/1/2009

John F. Kennedy Space Center

NPP - Safety and Mission Assurance

Ken Hale

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	Y	Y
Software / Hardware Problems	☐	☑	Tracking Alenia tank issues	Y	Y	Y
Alerts	☐	☑	No significant issues being tracked	G	G	G
Audits/Inspections/Surveillances	☐	☑	No significant issues being tracked	G	G	G
Limited Life Items	☐	☑	No significant issues being tracked	G	G	G
Reliability				G	G	G
FMEA/Fishbones/Equivalent	☐	☑	No significant issues being tracked	G	G	G
Reliability Assessments	☐	☑	No significant issues being tracked	G	G	G
Safety				G	G	G
Requirements Definitions	☐	☑	No significant issues being tracked	G	G	G
Range Safety & Mission Flight Rules	☐	☑	No significant issues being tracked	G	G	G
Licenses/Use Authorizations	☐	☑	No significant issues being tracked	G	G	G
Safety Documentation	☐	☑	No significant issues being tracked	G	G	G
Non-compliances	☐	☑	No significant issues being tracked	G	G	G
Contingency Planning	☐	☑	No significant issues being tracked	G	G	G
Mission Assurance				Y	Y	Y
Lessons Learned	☐	☑	No significant issues being tracked.	G	G	G
First Flight/Mission Unique items	☐	☑	No significant issues being tracked.	G	G	G
Test/Qualification/Certification	☐	☑	No significant issues being tracked.	G	G	G
Mission Assurance Assessments	☐	☑	Tracking Alenia tank issues	Y	Y	Y
Risk Management	☐	☑	Alenia tanks are yellow for Delta II. NPP tank to be assessed along with any residual risk.	Y	Y	Y

John F. Kennedy Space Center

NPP Comm & Telemetry

Ralph Mikulas and Tuan Doan

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	0	0	0
Data Comm	0	0	0
Networks	0	0	0
Video Comm	0	0	0
Timing	0	0	0
RF Comm	0	0	0
LSSP Comm Annex	0	0	0

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0

IBEX Project Summary

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

Mission	IBEX
Launch Date	2008/07/15
Launch Vehicle	Pegasus
Launch Period Window	Determined by Arg. of Perig
PPF	1555

OVERALL MISSION

Feb	Mar	Apr
G	Y	R

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	G	G	Y
Manifest/Range	G	G	G
Integrated Schedule	G	G	Y
ICD	G	G	G
CDRLs (S/C & LSC)	G	G	Y

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	G	G
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	G	G	Y
Safety	G	G	G
Quality	G	G	G
Reliability	G	G	G

ENGINEERING			
Launch Vehicle	G	G	G
Mission Specific	Y	Y	R
Certification	N/A	N/A	N/A
Mission Analysis	G	Y	R
ERS/ERB	G	G	Y
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY			
Communications	G	G	G
Telemetry	G	G	G

BUSINESS			
Budget	G	G	G
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	G	G	G
Deployables	N/A	N/A	N/A
P-3/OTTR	N/A	N/A	N/A

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

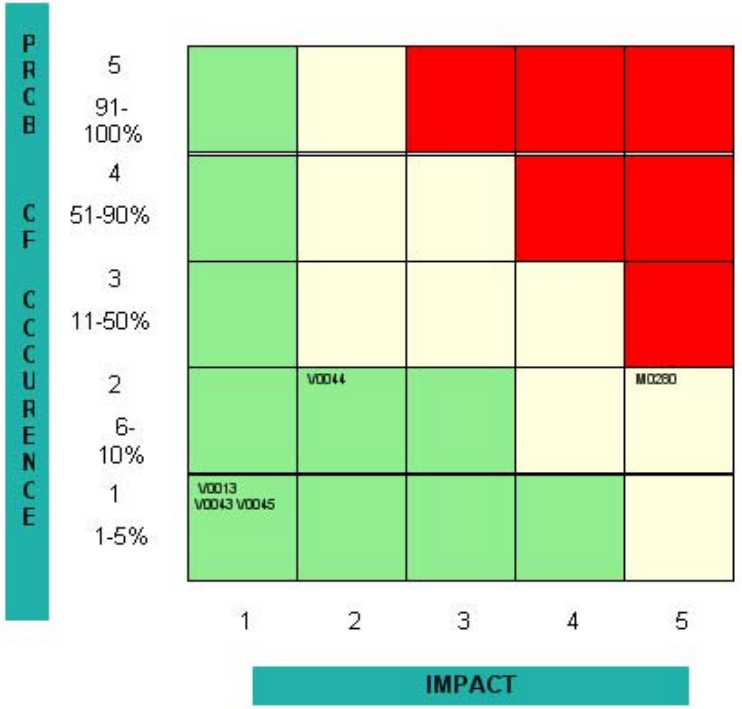
Sensitive But Unclassified

IBEX - Open/Accepted Risks

John F. Kennedy Space Center

LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
0	V0013	Suspected asymmetric lateral moments encountered at high angle of attack near MACH-1
		Loss of vehicle control
0	V0043	LS SMA has noted various deficiencies within Orbital Science Corporations Quality Management System
		These quality management system deficiencies increase the likelihood that undetected technical problem(s) are present on the flight hardware.
0	V0045	Delamination within Orion nozzle ECL on non-NASA vehicle
		Adverse heating of structural components leading to nozzle failure
0	V0044	Qualification failures of the frangible ring assembly during ambient and high temperature functionality test
		Degradation of mission performance due to sections of un-fractured joint causing unclean separation of the payload fairing.
Y	M0280	The Launch Vehicle mechanical interface requirements for the IBEX Motorized Light Band (MLB) at spacecraft separation are incompletely defined.
		If the MLB does not correctly operate on orbit due to incorrect definition of the mechanical interface, spacecraft separation may not occur properly, which could result in loss of mission.



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IBEX - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

Mission Summary Map	G/Y/R	ACTIONS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	Y	5 of 7 S&A fairing door drawings have have been received from LSG. Fairing is built, unable to ERB the S&A fairing door.	Problem	03/26/2008	04/23/2008

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Mission Management	0	Launch management for Kwaj campaign	WI	05/01/2006	
Engineering	R	Impact of induced loads from S1/S2 ignition events. Preliminary CLA showed positive margins. Final CLA indicated significant increase in net cg acceleration over PCLA (now 19.4 g's). KSC analysis using alternative methodologies did not show significantly better results. MIT assessing hardware changes to reduce loads.	WI	09/01/2005	05/19/2008
Engineering	G	RISK V0043 LS SMA has noted various deficiencies within Orbital Science Corporation's Quality Management System. Accepted by LSP for AIM; not yet accepted for IBEX.	RISK	02/06/2008	07/15/2008
Engineering	G	RISK V0045 A delamination has occurred within an Orion nozzle exit cone liner (ECL) on a non-NASA vehicle. Accepted for the AIM mission; not yet accepted for IBEX.	RISK	02/06/2008	07/15/2008
Engineering	Y	Potential technical performance and/or schedule impact of meeting interface flatness requirement of Pegasus avionics section.	WI / RISK	02/15/2008	04/15/2008

John F. Kennedy Space Center

IBEX - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
IBEX MUPDR	09/20/2006-09/20/2006
IBEX CDR	09/12/2006-08/18/2006
MIWG#4/RWG#1 at Kwajalein	10/20/2006-10/27/2006
MUCDR	03/20/2007-03/20/2007
Mission Integration TIM	12/6/2006-12/6/2007
Preliminary Mission Analysis	05/16/2007-08/16/2007
PDU Testing with MLB	01/21/2008-01/25/2008
MIWG #5/RWG#2 at VAFB	05/22/2007-05/23/2007
Delta MUCDR	08/29/2007-08/29/2007
Safety Working Group (SWG) Reconvene in Dulles	10/25/2007-10/25/2007
MLB Separation Test	12/18/2007-02/01/2008
GOWG at VAFB	01/17/2008-01/18/2008
Serial Telemetry Test #1	12/06/2007-12/07/2007
Serial Telemetry Test #2	12/17/2007-02/01/2008
Avionics shim test, study on test article avionics shelf/test on flight avionics unit	01/21/2008-03/17/2008
Fairing load test pending NASA ERB 04-37	01/21/2008-02/15/2008
GOR at VAFB	03/12/2008-03/12/2008

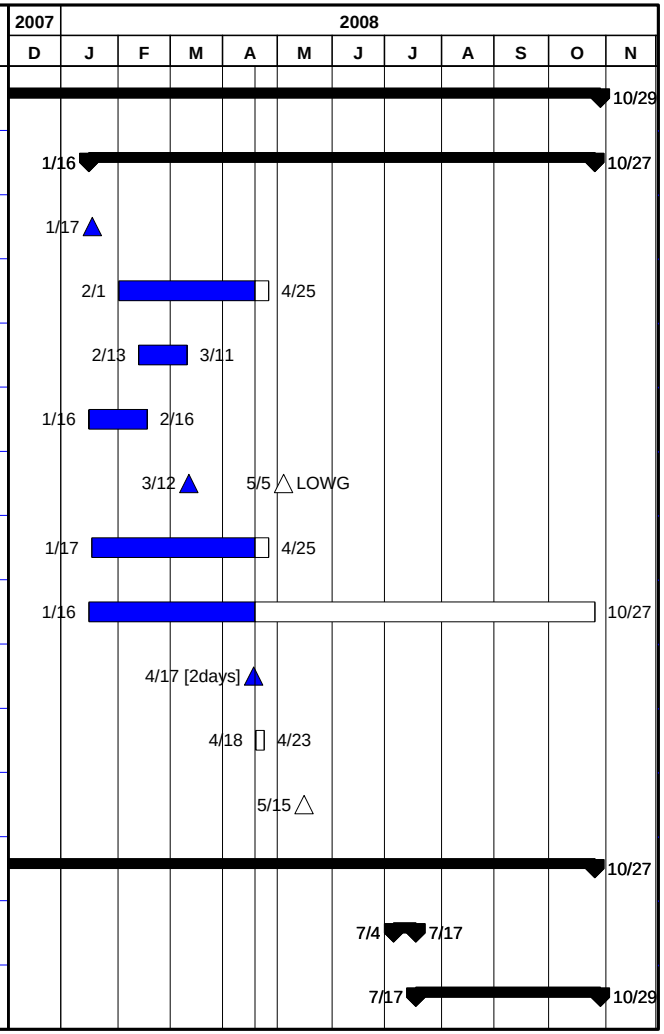
Planned	
IBEX Pre-Ship Review at Dulles	04/17/2008-04/18/2008
Launch Operations Working Group (LOWG)	05/06/2008-05/08/2008

BOSS IBEX Schedule

LSP-F-330.02 Basic

4/17/08

ID	WBS	Name	Resp.
1		**BOSS IBEX Schedule**	
2		**LV & SC Engineering & Manufacturing Phase (~L-27 months to ~L-3 months)**	
3	4.3.29	GOWG	LSIM
4	4.3.30	Prepare PPF & services for GSE/SC arrival	LSIM
5	4.3.31	Comm & Telemetry Reviews	LSIM
6	4.3.32	Review S/C Final MSPSP	SMA
7	4.3.33	GOR	LSIM
8	4.3.37	Begin Access Badging & Training	LSIM
9	4.3.38	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev, Des Rev, Qual)"	TM
10	4.3.42	S/C PreShip Review	SC
11	4.3.43	S/C Ships	SC
12	4.3.44	Phase Close-Out	MM
13		**Launch Site Operations (~L-3 months to ~L-10 days)**	
36		**Launch Phase (~L-10 days to Launch)**	
54		**Post Launch Phase (to ~L+3 months)**	



TM = Technical Management
HQ = NASA HQ & Mission Directorate
LD = Launch Director
LSP = LSP Mgmt
LSIM = Launch Site Integration Manager
LSTO = LSTO (Mini Source Board)
LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

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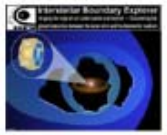
IBEX Mission Management

John Calvert

LAUNCH SERVICES PROGRAM

Mission	IBEX
Launch Date	2008/07/15
Orbit Requirement	200km target circular, 11 deg
Launch Vehicle Class	Pegasus
Launch Period Window	Determined by Arg. of Perig
PPF	1555
Mass (kg)	482.6
PAD	Kwajalein



	Feb	Mar	Apr
ICD	G	G	G

SIGNED SCNS:		SCNS IN REVIEW	
SCN #	**DATE SIGNED**	**SCN #**	**DATE SIGNED**
ICP 6 - 14	04/15/2008	ICP-15/Radiated emission	
MICD ICP 1-4	04/15/2008	ICP-16: Fairing Venting	
EICD ICP 4-9	04/15/2008	ICP-17: bracket/ cleanup	

Observatory Status	Feb	Mar	Apr
Observatory Status	G	G	Y
Schedule	G	G	Y
Budget	G	G	G
Deliverables	G	G	Y
Testing	G	G	Y
ATLO	0	0	0
Instrument	G	G	G

Launch Vehicle Status			
Integrated Schedule	G	G	Y
CDRLs (S/C & LSC)	G	G	Y
Manifest/Range	G	G	G
Ground Stations	G	G	G
Deployables	N/A	N/A	N/A
P-3/OTTR	N/A	N/A	N/A

Mission Center:	GSFC
Program:	Explorers
PM	G. Frazier (GSFC) Scherrer (SwRI)
LVI	Mark Phillips
MM	John Calvert
IE	John Battcher
LSIM	Jeffrey Ehrsam
PIM	Ken Carr
MAM	Michael Johnson
MCE	Ralph Mikulas
MTE	Tuan Doan

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IBEX - Engineering

John Battcher

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	G	G	G
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	G	G	G
Payload Attach Fitting	N/A	N/A	N/A
Other	N/A	N/A	N/A
Mission Specific	Y	Y	R
Certification	N/A	N/A	N/A
Mission Analysis	G	Y	R
ERS/ERB	G	G	Y
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS

NUMBER OF REQUIREMENTS	164
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)

There are none.

MISSION UNIQUE STUDIES (IF APPLICABLE)

There are none.

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IBEX - Mission ERB Status

John Battcher

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	05-382	IBEX ICD Review	☑	☐	☑	☐	☐	☐	☐	☐
G	06-368	Pegasus/IBEX Mission Unique CDR	☑	☐	☑	☐	☐	☐	☐	☐
Y	07-280	Pegasus - IBEX S&A Fairing Door	☑	☐	☐	☑	☐	☐	☐	☐
G	07-236	Pegasus IBEX Modified Avionics/Transient Li-Ion Battery System	☑	☐	☐	☑	☐	☐	☐	☐
G	07-202	IBEX Avionics PDU Mission Unique Modification	☐	☑	☐	☑	☑	☐	☐	☐
Y	07-309	IBEX - Avionics Structure Interface Requirement	☑	☐	☑	☐	☐	☐	☐	☐
G	07-279	Pegasus/IBEX - Conax Isolation Valve (First Flight)	☑	☐	☐	☑	☐	☐	☐	☐

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IBEX - Vehicle ERB Status

John Battcher

[redacted] LAUNCH SERVICES PROGRAM [redacted]

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	04-339	Pegasus - Fin Material Manufacturing	☑	☐	☑	☐	☐	☐	☐	☐
G	07-270	Pegasus Fin-Pin Redesign	☑	☐	☑	☐	☐	☐	☐	☐
G	07-322	IBEX, ST-2005 Telemetry Transmitter - First Flight	☑	☐	☑	☐	☐	☐	☐	☐
G	07-115	Safe & Arm Detonators, 2007 Process Review	☑	☐	☑	☐	☐	☐	☐	☐
G	07-114	Parker TVC H-Bridge Shoot-through during T4 testing	☑	☐	☑	☐	☐	☑	☐	☐
G	04-37	Pegasus - Frangible Ring Change in ATP	☑	☐	☑	☐	☐	☐	☐	☐

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IBEX - Launch Site

Jeffrey Ehrsam

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	02/19/2007	06/15/07
Baseline	11/19/2007	01/02/2008

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	Y	G	G
Radiation Control	G	G	G
Operational Plans	G	Y	Y

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
Spin table not available at VAFB; Orbital to provide table from Dulles, VA	G	G	G
Contingency hydrazine support at RTS	G	G	G
Range Safety approval for spin balance has been given verbally with caveats on documentation of safety features and analysis that were agreed to at SWG.	G	G	G
PPF	G	G	G
IBEX Principle Investigator requests a low cost PPF; considers commercial PPF cost excessive for SMEX mission; On 29 Nov 2006, IBEX delivered a formal concurrence to use a comercial PPF.	G	G	G
Spacecraft OPS	G	G	G

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IBEX Budget Breakdown

Ken Carr

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
  -
  -
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
* **Integrated Services**
  - LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
  - USAF range costs attributable to the mission
  - Limited flexibility
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

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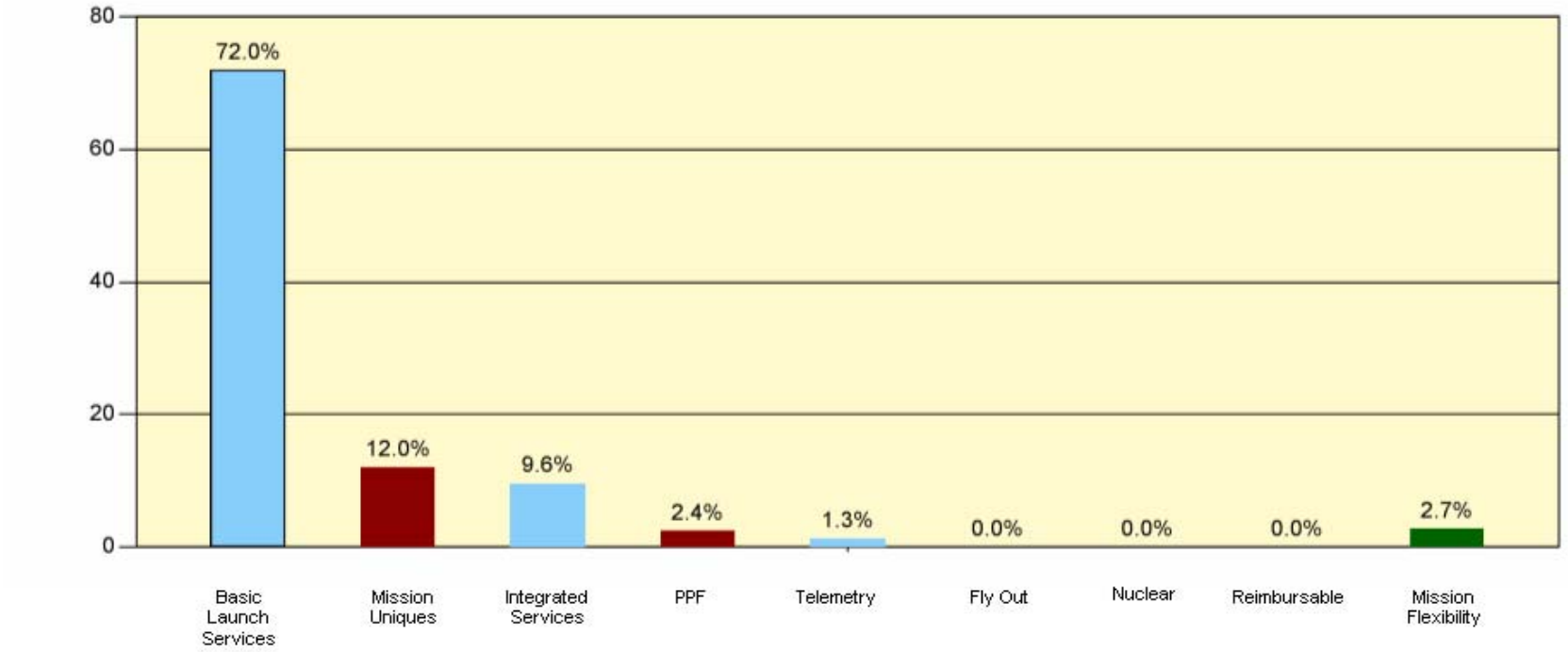
Launch Services Budget Breakdown

IBEX Mission

Ken Carr

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Variance: PPF on contract reflects lower contract cost than original estimate which increased Mission Flexibility.

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IBEX - Business

Ken Carr

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	G	G	G
Contracts	G	G	G

Milestone	Date
Milestone 1A	11/1/03
Milestone 1B	9/1/04
Milestone 1C	11/1/04
Milestone 1D	1/1/05
Milestone 2A	9/15/05
Milestone 2B	12/15/05
Milestone 3	8/15/06
Milestone 4	3/15/07
Milestone 5	7/15/07
Milestone 6	1/15/08
Milestone 7	3/15/08
Milestone 8	5/15/08
Milestone 9	8/15/08

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services		
Contract Mod	Number	Description
	Mod 11	Launch Delay from 8/15/07 to 6/15/08
	Mod 13	KWAJ launch site option
	Mod 13	Multiple Non-standard services
	Mod 25	Mission Unique Performance enhancements
	Mod 26	S&A upgrade
	Mod 27	2.2 Hydrocarbon Monitoring

Contract Mod	Number	Description
	Mod 31	IBEX Launch Delay from 6/15/08 to 7/15/08
	Mod 33	Avionics Section Flatness mod Forward end
	Mod 34	Avionics Section Flatness Mod Aft end
There are no LD Contract Mods		

Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	SP-23.001	Coupled Loads Analysis		
	SP-23.002	Separation Analysis		
	SP-23.003	Vehicle Enhancement Study		
	SP-23.004	Separation Analysis		
	SP-23.005	Trajectory & Controls Analysis		
	SP-23.006	Soft-Ride Feasability Study		
	SP-23.007	Early System Safety Support		
	SP-23.008	RF Compatibility Analysis		
	SP-23.009	IBEX CDR support		
	SP-23.011	IBEX Performance Study - Low Altitude Target		
	SP-23.012	Battery Health Check		
	SP-23.013	PDU Testing		
	SP-23.014	ST 2005 Transmitter study		
	SP-23.015	RCS Venting		
	SP-23.016	Mass Dispersion Study		
	SP-23.017	Avionics Shelf Flatness Study		
	SP-23.018	PMA		
	SP-23.019	Propellant Offload Support		
	SP-23.020	Payload Faring Venting Analysis		
There are no PPF Contract Mods				
There are no Other Contract Mods				

	Issues
0	Period 3 delay gate (May 9th) Aug 9 ILC
0	Period 2 delay gate (July 10) Aug 9 ILC

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IBEX - Safety and Mission Assurance

Michael Johnson

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				G	G	G
Software / Hardware Problems	☐	☑	No issues at this time	G	G	G
Alerts	☐	☑	No issues at this time.	G	G	G
Audits/Inspections/Surveillances	☐	☑	No issues at this time.	G	G	G
Limited Life Items	☐	☑	No issues at this time.	G	G	G
Reliability				G	G	G
FMEA	☐	☑	MU/FF items under review No FMEA/Fishbones/Equivalent have been identified	G	G	G
Reliability Assessments	☐	☑	No issues at this time.	G	G	G
Safety				G	G	G
Requirements Definitions	☐	☑	In Work (Range Safety).	G	G	G
Range Safety & Mission Flight Rules	☐	☑	Governing docs - 30th & Kwaj.	G	G	G
Licenses/Use Authorizations	☐	☑	No issues at this time.	G	G	G
Safety Documentation	☐	☑	In Work - Tailor Safety doc for Kwaj launch	G	G	G
Non-compliances	☐	☑	Waivers/Deviations/Exceptions	G	G	G
Contingency Planning	☐	☑	Distribute prior to SARR	G	G	G
Mission Assurance				G	G	Y
Lessons Learned	☐	☑	No issues at this time.	G	G	G
First Flight/Mission Unique items	☐	☑	No issues at this time	G	G	G
Test/Qualification/Certification	☐	☑	No issues at this time	G	G	G
Mission Assurance Assessments	☐	☑	Avionics shelf flatness. Axial load since most recent CLA.	G	G	Y
Risk Management	☐	☑	Risk identification and surveillance sufficient for project at this time	G	G	G

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IBEX Comm & Telemetry

Ralph Mikulas and Tuan Doan

	Feb	Mar	Apr
Communications	G	G	G
Voice Comm	G	G	G
Data Comm	G	G	G
Networks	G	G	G
Video Comm	G	G	G
Timing	G	G	G
RF Comm	G	G	G
LSSP Comm Annex	G	G	G

	Feb	Mar	Apr
Telemetry	G	G	G
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Checkout	0	0	0
Console Configuration	0	0	0

GLORY Project Summary

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LAUNCH SERVICES PROGRAM

Mission	GLORY
Launch Date	2009/03/01
Launch Vehicle	Taurus
Launch Period Window	TBD
PPF	Commercial PPF

OVERALL MISSION

Feb	Mar	Apr
Y	Y	0

MISSION MANAGEMENT	Feb	Mar	Apr
Observatory Status	R	R	0
Manifest/Range	G	Y	0
Integrated Schedule	G	G	0
ICD	G	G	0
CDRLs (S/C & LSC)	G	G	0

LAUNCH SITE	Feb	Mar	Apr
LSSP	G	G	G
Customer Inputs	G	G	G
PPF	G	Y	Y
Launch Site Unique	G	G	G
Spacecraft OPS	G	G	G

SAFETY & MISSION ASSURANCE	Feb	Mar	Apr
Mission Assurance	G	G	0
Safety	G	G	0
Quality	Y	Y	0
Reliability	G	G	0

ENGINEERING			
Launch Vehicle	G	G	G
Mission Specific	Y	G	G
Certification	Y	Y	Y
Mission Analysis	Y	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

COMM & TELEMETRY			
Communications	0	0	0
Telemetry	0	0	0

BUSINESS			
Budget	R	R	R
Contracts	G	G	G

DOWNRANGE TELEMETRY			
Ground Stations	G	G	0
Deployables	G	G	0
P-3/OTTR	G	G	0

LEGEND

Proceeding on Plan	G
Area of Concern	Y
Significant Problem	R
Not Evaluated	0
Not Applicable	N/A

Sensitive But Unclassified

GLORY - Open/Accepted Risks

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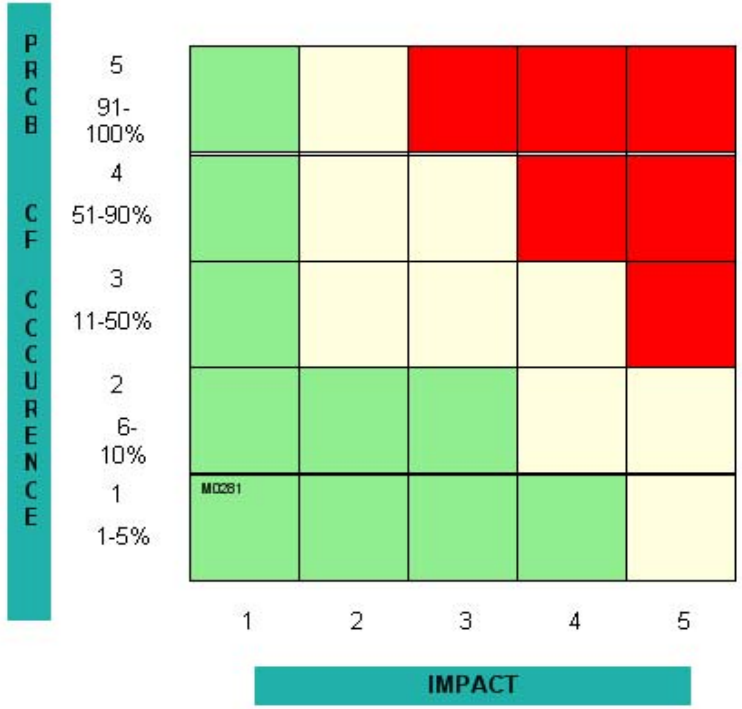
LAUNCH SERVICES PROGRAM

		Condition
RYG Trend	RiskID	Consequence
Y	M0281	If an Glory S/C N2H4 fuel tank leak were to occur, complete off-load of the fuel cannot be done while the S/C is horizontal or while stacked on the launch vehicle. Note: a single risk ID is assigned to both OCO and Glory.
		Launch delay due to resulting defueling plan execution and subsequent leak repair.



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GLORY - Actions / Issues / Concerns

LAUNCH SERVICES PROGRAM

Mission Summary Map	G/Y/R	ACTIONS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	CFD Models generated by LSP indicate a simple change to the ECS duct exit diffuser will adequately redirect flow away from s/c. Model validation complete. SOW to LSG requesting design solution in work by contracts. ERB scheduled for 5/29/08. Ref ECS impingement onto APS Earth Shield (T8/T9 Ballast Ring MUCDR action).	ERS	01/31/2008	05/29/2008
Engineering	G	Potentially high lateral loading identified in the CLA - Analysis complete with no issues identified, ERB scheduled for 4/22.08. Reference ERS-08-21.	ERS	01/31/2008	04/22/2008

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	Glory electrical requirements at the pad are similar to OCO and also need the facility modification in work for OCO. Make sure modification covers both S/C needs.	ERS	04/17/2007	05/31/2008
Mission Management	0	2/7/2008 update: The Glory project has set a new launch date of 3/1/2009 and the APS instrument is proceeding along a re-baselined plan which supports the Glory mission. Any additional APS cost growth and/or mission impacts will be reported. Glory has indicated there is currently inadequate budget to fund APS cost growth, this could cause an impact to schedule. Glory still holding to current launch date with this issues	WI	04/11/2007	4/3/08
Engineering	G	The fairing static/dynamic envelope was violated by a portion of the Glory APS instrument (identified at ballast ring MUPDR). Spacecraft stackup tolerance analysis received, reviewed, and forwarded to LSG. New clearance analysis is in work, but not expected to significantly change existing envelope violation.	WI	8/28/2007	05/30/2008

Mission Summary Map	G/Y/R	ISSUES / CONCERNS	WI/ERS/Risk/ Problem	Open Date	Due Date
Engineering	G	ICP in approval cycle to adjust levels based on addition of ballast ring. SC will test to 10 V/m across the entire spectrum out to 18 GHz, based on TIM instrument susceptibility (levels lowered to their ICD based 461C requirements). Old Status: Glory's EMI/EMC test plan is based on MIL std 461C (GSFC GEV). Glory test levels do not ensure the s/c is protected against the general background (established in 461E) and some radiated emissions from the LV. LSP is working with Glory to redefine the	WI	01/09/2008	04/30/2008
Engineering	G	The Taurus XL Cert Completion Date-VSE and Eng Flight analysis support, 90-95% completion date is behind schedule. Plan is to complete cert by end of April.	WI	01/15/2008	06/30/2008
Mission Management	0	The Taurus LV currently uses 416 MHz FTS command receivers for range safety. Orbital has been notified by the range to migrate their receivers 421Mhz. Orbital has already placed the 416Mhz receiver on order for OCO and getting ready to order Glory's To charge out the receivers will cause a delay to the Glory mission unless a waiver can be approval to fly the current configuration. LSP Launch Directors are working this issue with other vehicle fleets other then Taurus	WI	2/19/08	6/19/08
Mission Management	0	WROCC is transitioning from the old MFCC to the new WROCC MFCC beginning 29 Jan 09 and planned to be complete on 29 Mar 09. The current Glory readiness date is 3/1/09 which falls in the middle of the transition period. OSC has withdrawed their delay proposal for March 1st 2009 and contracts are working the options	Problem	3/17/09	6/17/09

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GLORY - Significant Events

LAUNCH SERVICES PROGRAM

Accomplished	
Received update SC model and LSP is performing a base drive analysis. Inputs for LSG received 4/16/2007. Inhouse done and in-work comparing results to LSG and Swales analysis. Difficulties getting data to GSFC	1/31/07-07/31/2007
Master ICD, EICD (with ICP001), and MICD (with ICP001) baselines have been signed.	06/25/2007-10/26/2007
Contract Mod for ballast ring turned on	06/22/2007-7/24/2007
PMA inputs received. PMA has been recieved by LSP and S/C. Currently in review. LSP review is complete and has been recommended to MIM for release (TOD) to Glory.	8/23/07-11/26/2007
MIWG/GOWG at VAFB, delayed from Nov due to uncertainty on PPF processing location. MIWG to be held at GSFC on Nov 28. MIWG 4 held at GSFC on November 28. Meeting was successful. Targeted next GOWG for February 13th.	11/28/07-11/28/07
T8/T9 MUCDR is complete and the board concurred with the design and proceed to manufacturing of the ballast ring. Two significant actions were assigned: Assess s/c sensitivity to any ECS impingement due to the ballast ring implementation (ref ERS 08	1/31/08-1/31/08
Shock test on bus level only has been eliminated at request of S/C	12/7/07-10/17/2007
CLA mission analysis for all 3 requested load cases using the old model were received and sent to s/c in support of their environmental test review for the instrument.	8/25/07-8/28/07

Planned	
Next interation of MU pad electrical upgrade expected.	1/1/08-06/02/2008
T8/T9 MUSAR	8/28/08
Glory GOWG on hold until PPF selected.	05/06/2008-06/27/2008
S/C Validated FEM delivery	08/21/2008-08/21/2008
Support S/C shock test and fit check. Testing moved out to accomodate re-baseline of Glory environmental tests.	04/14/2008-07/31/2008

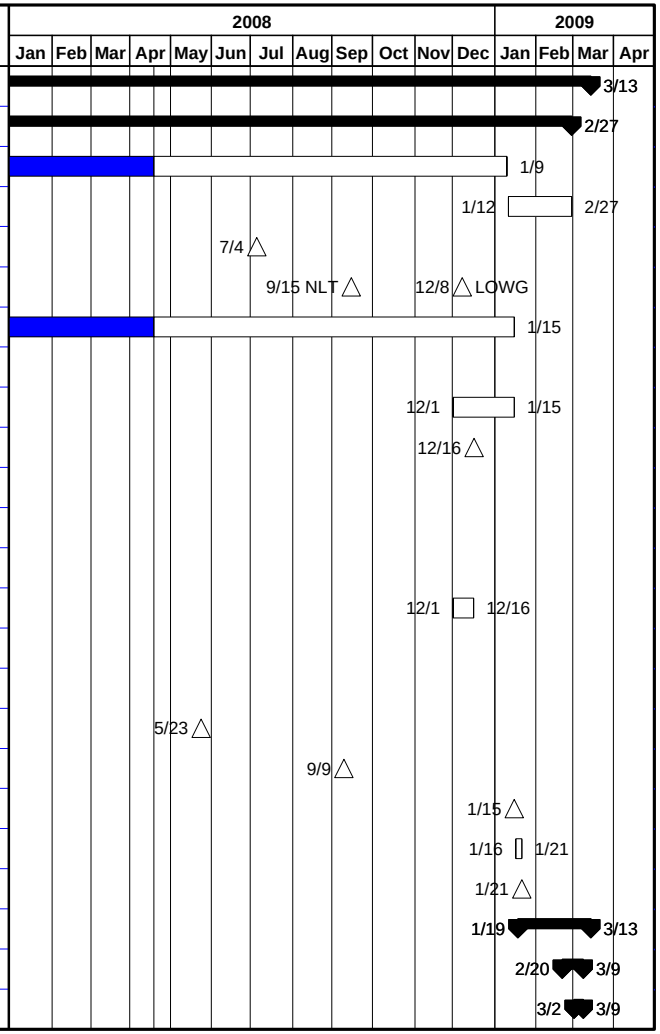
S/C thermal model (8k nodes) to be delivered to LSG this month. Received spacecraft thermal analysis. LSP reviewed and concurred with analysis after some minor tweaks. Forwarded to LSG.	08/01/2007-11/07/2007
CLA with the new s/c model (received Oct 16 2007) is complete. The CLA has been delivered to LSP and is in review; expected to be delivered to s/c next week.	11/07/2007-01/31/2008
SOW approved for use of PPODS on OCO/Glory missions. Kickoff meeting completed. Successfully presented PPOD/CubeSat orbital affects to the A-Train MOWG.	08/24/2007-03/05/2008
Received payload processing proposals and evaluated them. Discussions with offerors in response to questions generated scheduled for w/o 9/10.	9/5-9/7
ERB for Softride for T8/T9 delayed until December 11th due to the requirement for additional technical details in the ERB package. Agreement reached between technical team (LSP, LSG, CSA) on required inputs for ERB. Ready to proceed to ERB on 12/11	11/29/2007-12/11/2007
Glory project Pre-Environmental Review - approved Project to proceed with Environmental testing.	02/05/2008-03/05/2008
Preliminary Sep Analysis from LSG has been reviewed and approved by LSP. It has been released to Glory and added to Tech Doc.	10/17/2007-12/04/2007
S/C thermal model (8k nodes) to be delivered to LSG this month. Received spacecraft thermal analysis. LSP reviewed and concurred with analysis after some minor tweaks. Forwarded to LSG.	08/01/2007-11/07/2007
Deliver first revision of LSP Verification Matrix to GSFC Glory project at thier request	01/01/2008-02/22/2008

BOSS GLORY Schedule

LSP-F-330.02 Basic

4/17/08

ID	WBS	Name	Resp.
1		**BOSS GLORY Schedule**	
2		**LV & SC Engineering & Manufacturing Phase (~L-27 months to ~L-3**	
3	4.3.7	LV Mfg	LV
4	4.3.27	LV Components arrives at Launch Site	LV
5	4.3.28	Publish Baseline LSSP	LSIM
6	4.3.29	GOWG	LSIM
7	4.3.30	Prepare PPF & services for GSE/SC arrival	LSIM
8	4.3.31	Comm & Telemetry Reviews	LSIM
9	4.3.32	Review S/C Final MSPSP	SMA
10	4.3.33	GOR	LSIM
11	4.3.34	Process Launch Delays as needed	PIM
12	4.3.35	Track Milestone Payments	PIM
13	4.3.36	Procure Deployable & Fixed Telemetry Assets	PIM
14	4.3.37	Begin Access Badging & Training	LSIM
15	4.3.38	"LV & MU Eng Review Process (ERBs,ERSs,Req Rev, Des Rev, Qual)"	TM
16	4.3.39	Payload-LV Fitcheck	TM
17	4.3.40	MIWG	MM
18	4.3.41	Safety TIMS PSWG	SMA
19	4.3.42	S/C PreShip Review	SC
20	4.3.43	S/C Ships	SC
21	4.3.44	Phase Close-Out	MM
22		**Launch Site Operations (~L-3 months to ~L-10 days)**	
45		**Launch Phase (~L-10 days to Launch)**	
63		**Post Launch Phase (to ~L+3 months)**	



TM = Technical Management
HQ = NASA HQ & Mission Directorate
LD = Launch Director
LSP = LSP Mgmt
LSIM = Launch Site Integration Manager
LSTO = LSTO (Mini Source Board)
LV = Launch Vehicle Contractor
MM = Mission Manager
PIM = Program Integration Manager
SC = Spacecraft Project
SMA = Safety & Mission Assurance

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GLORY Mission Management

Garrett Skrobot

LAUNCH SERVICES PROGRAM

Mission	GLORY
Launch Date	2009/03/01
Orbit Requirement	<695 km/98.189 degree inclination
Launch Vehicle Class	Taurus
Launch Period Window	TBD
PPF	Commercial PPF
Mass (kg)	528 kg (TB
PAD	567E

ICD	Feb	Mar	Apr
	G	G	0

SIGNED SCNS:		SCNS IN REVIEW	
SCN #	**DATE SIGNED**	**SCN #**	**DATE SIGNED**
MICD ICP1	10/10/2007	ICP 1	
		ICP2	
EICD ICP1	12/07/2007	ICP3	
		ICP4	
		ICP5	

Observatory Status	Feb	Mar	Apr
Observatory Status	R	R	0
Schedule	R	R	0
Budget	R	R	R
Deliverables	G	G	0
Testing	G	G	0
ATLO	G	G	0
Instrument	Y	Y	0

Launch Vehicle Status			
Integrated Schedule	G	G	0
CDRLs (S/C & LSC)	G	G	0
Manifest/Range	G	Y	0
Ground Stations	G	G	0
Deployables	G	G	0
P-3/OTTR	G	G	0

Mission Center:	GSFC
Program:	ESSP
PM	Bryan Fafaul
LVI	John Satrom
MM	Garrett Skrobot
IE	Sarah LeValley
LSIM	Mark Mertz
PIM	Ken Carr
MAM	Laura McDaniel
MCE	Mike Patton
MTE	Nathan Wood

Sensitive But Unclassified

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GLORY - Engineering

Sarah LeValley

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Launch Vehicle	G	G	G
Payload Fairing	G	G	G
First Stage	G	G	G
Second Stage	G	G	G
Third Stage	G	G	G
Payload Attach Fitting	G	G	G
Other	N/A	N/A	N/A
Mission Specific	Y	G	G
Certification	Y	Y	Y
Mission Analysis	Y	G	G
ERS/ERB	G	G	G
Launch PAD/GSE	G	G	G
Mission Unique IV&V	N/A	N/A	N/A

REQUIREMENT VERIFICATION STATUS	
NUMBER OF REQUIREMENTS	0
VERIFIED TO DATE	0

LAUNCH PAD / GSE MODS (IF APPLICABLE)
There are none.

MISSION UNIQUE STUDIES (IF APPLICABLE)
There are none.

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GLORY - Mission ERB Status

Sarah LeValley

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
G	05-381	GLORY Spacecraft Questionnaire	☐	☑	☐	☑	☐	☐	☑	☐
G	06-388	Taurus T8/T9 RCS Moment Arm Issue	☑	☐	☑	☐	☐	☐	☑	☐
G	07-80	Incorrect Holes Drilled in Critical GSE Separation Test Ring	☐	☑	☐	☑	☑	☐	☑	☐
G	07-189	T8/T9 Ballast Ring MUPDR	☑	☐	☑	☐	☐	☐	☐	☐
G	07-259	Glory ICD Review	☑	☐	☑	☐	☐	☐	☐	☐
G	07-302	T-0 purge for Glory and OCO	☑	☐	☐	☑	☐	☐	☐	☐
G	07-173	Taurus T8/T9 Softride Isolators	☑	☐	☐	☑	☐	☐	☐	☐
G	07-188	Taurus T8/T9 MURR	☑	☐	☑	☐	☐	☐	☐	☐
G	07-190	Taurus T8/T9 MUCDR	☑	☐	☐	☑	☐	☐	☐	☐
G	07-191	Taurus T8/T9 MUSAR	☑	☐	☐	☑	☐	☐	☐	☐
G	06-328	OCO/Glory EGSE Electrical Harness Pad Upgrade	☑	☐	☐	☑	☐	☐	☐	☐
G	08-20	Glory ECS impingement on APS Earth Shield	☑	☐	☐	☑	☐	☐	☐	☐
G	08-21	Glory PCLA (rev A) lateral/axial coupling	☑	☐	☐	☑	☐	☐	☐	☐

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GLORY - Vehicle ERB Status

Sarah LeValley

LAUNCH SERVICES PROGRAM

			ERB Req?		Board Held?			Closure		
R/Y/G	ERS #	TITLE	Y	N	Y	N	N/A	AI	ENG.	OCE
0	05-052	SBS/OR Heritage Flight Computer Life Extension	☑	☐	☐	☑	☐	☐	☐	☐
0	04-460	Pegasus-TVC lot 10 cap failure power board	☐	☑	☐	☐	☑	☐	☐	☐
0	06-113	Safe and Arm, Detonator Anomaly	☑	☐	☐	☑	☐	☐	☐	☐
0	07-069	S&A Failure to Rotate	☑	☐	☐	☑	☐	☐	☐	☐
0	07-076	Orion Motor Case Resin Requalification	☑	☐	☐	☑	☐	☐	☐	☐
0	07-113	Safe & Arm (New Build) Process Review	☑	☐	☐	☑	☐	☐	☐	☐
0	07-114	Parker TVC H-Bridge Shoot-through during T4 testing	☑	☐	☐	☑	☐	☐	☐	☐
0	07-138	Taurus Stage 1 TVA Kit Changes	☑	☐	☐	☑	☐	☐	☐	☐
0	07-144	Orion Motor Nozzle Rayon Replacement	☑	☐	☐	☑	☐	☑	☑	☐
0	07-169	Taurus - TDRSS Transmitter PDR (LCT2 Xmtr)	☑	☐	☐	☑	☐	☐	☐	☐
0	07-328	7Ah Avionics Battery, Taurus First Flight, OCO/Glory	☑	☐	☐	☑	☐	☐	☐	☐

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GLORY - Launch Site

Mark Mertz

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
LSSP	G	G	G

LSSP	Planned	Released
Preliminary	07/2007	7/2007
Baseline	07/2008	

	Feb	Mar	Apr
CUSTOMER INPUTS	G	G	G

DELIVERABLES	Feb	Mar	Apr
Security and Badging	G	G	G
Training and Personnel Cert	G	G	G
Contingency Plans	G	G	G
Safety LSIM	G	G	G
Radiation Control	G	G	G
Operational Plans	G	G	G

UNIQUE REQUIREMENTS

	Feb	Mar	Apr
LAUNCH SITE UNIQUE	G	G	G
PPF	G	Y	Y
Commercial PPF	G	Y	Y
Spacecraft OPS	G	G	G
Fueling	G	G	G

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GLORY Budget Breakdown

Ken Carr

LAUNCH SERVICES PROGRAM

The launch service budget includes:

* **Launch Services**
  - Standard launch Vehicle Services provided by this contract. This line item is firm fixed price and has no flexibility.
* **Mission Uniques**
  - Requirements necessary to customize basic vehicle hardware to met unique s/c driven requirements.
  - Other services directly attributable to the mission.
  - Contains some flexibility except when technical risk is affected. Spacecraft requirements are the cost driver.
* **Integrated Services**
  - LSP contractor support service (ELVIS, CAPPS, JBOSC, KICs, etc).
  - USAF range costs attributable to the mission
  - Limited flexibility
  -
* **Payload Processing Facility**
  - Government facility: spacecraft customers are required to be processed in a government facility if the mission is planetary or has nuclear requirements
  - Commercial facility: all other missions have been directed to process in a commercial facility;
  - Contains some budget flexibility. Additional spacecraft cleanliness requirements or hazardous requirements may increase PPF costs.
* **Telemetry**
  - Assets required to meet minimum launch vehicle telemetry requirements.
  - Includes fixed and deployable ground stations, instrumented aircraft, and ocean assets.
  - Limited flexibility requirements are often set late in the integration cycle.
* **Fly Out**
  - Costs that each mission in the 19-Pack must incur.
  - Long lead material procurement to mitigate risks due to gaps in production and supplier orders.
  - Post-production support for labor skill retention, procure, manufacture, store and maintain under configuration control, mission critical spare parts.
  - Pad Sustainability costs for SLC-2 and SLC-17.
  - No flexibility-contract costs
* **Nuclear**
  - RTG/RHU processing
  - RTG/RHU databooks and approval
  - Limited flexibility
* **Reimbursable**
  - Reimbursable FC for transportation, labor, and CMO.

* **Mission Flexibility**
  - Portion of the mission budget available for funding additional task assignments, non-standard services or meeting unexpected requirements.

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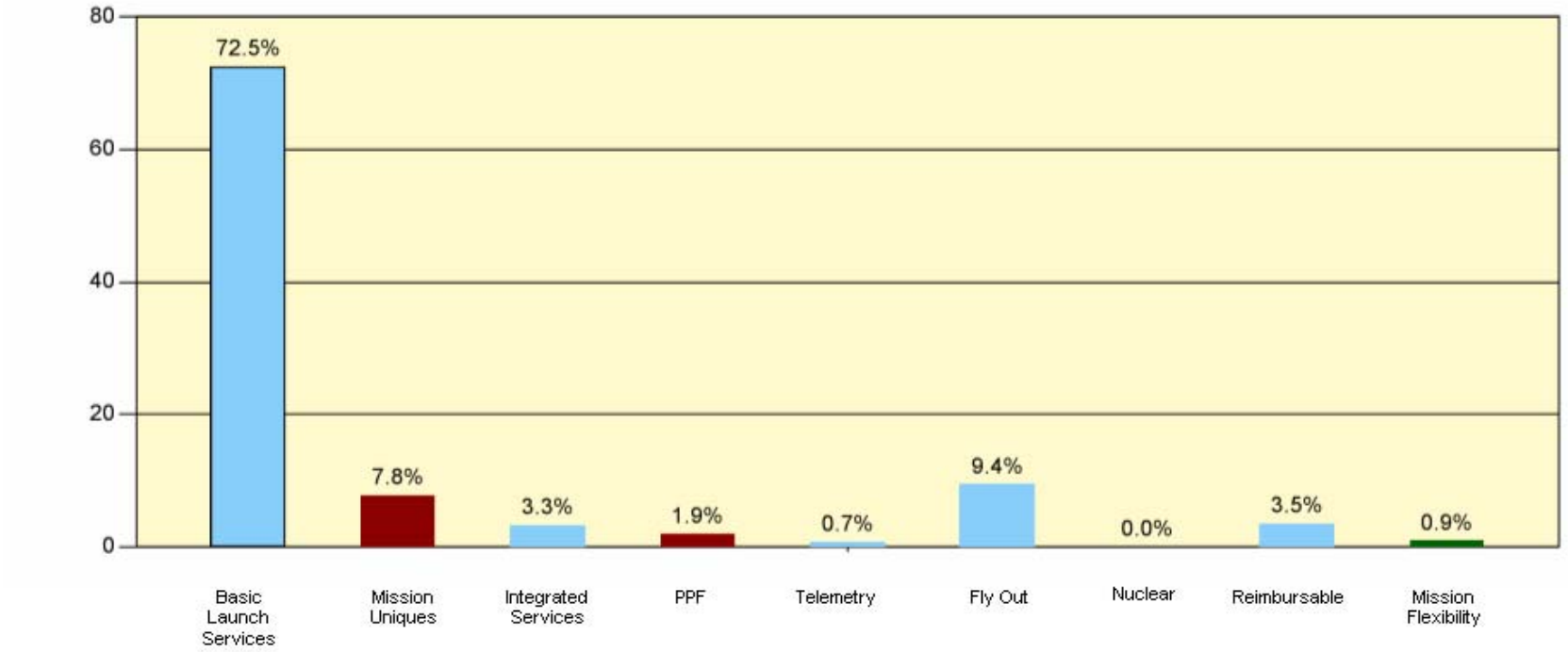
Launch Services Budget Breakdown

GLORY Mission

Ken Carr

LAUNCH SERVICES PROGRAM

% of Total Launch Service Cost - 4 / 2008



No flexibility; cost are fixed

Limited Flexibility depending on spacecraft requirements

Flexible portion of budget

Notes:

Variance: Significant increases in Mission Flexibility due to reduction in liens for PPF and Telemetry and removed lien for additional shock test.

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GLORY - Business

Ken Carr

LAUNCH SERVICES PROGRAM

	Feb	Mar	Apr
Budget	R	R	R
Contracts	G	G	G

Milestone	Date
Milestone 1	11/15/2005
Milestone 2a	02/15/2006
Milestone 2b	06/15/2006
Milestone 3a	10/15/2006
Milestone 4	03/15/2007
Milestone 5	08/15/2007
Milestone 6	11/15//2007
Milestone 7	06/15/2008
Milestone 8a	09/15/2008
Milestone 8b	11/15/2008
Milestone 9	02/15/2009
Milestone 3b	12/15/2006

Open Milestone Payment

Paid Milestone

Contract Status

Launch Services

Contract Mod	Number	Description
	17	NSS Intrument purge & Payload Isolation System
	22	Ballast Ring for launch vehicle

There are no LD Contract Mods

Task Assignments	Number	Description	Completion Date	Invoice Paid Date
	SP-071	Taurus Isolation Random Vibe Environment		

There are no PPF Contract Mods

There are no Other Contract Mods

	Issues
0	Launch Service budget is green, but due to Spacecraft budget issues the chart reflects a red. This is an issue with MIRS that drives the business section when the spacecraft budget section is modified.

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GLORY - Safety and Mission Assurance

Laura McDaniel

LAUNCH SERVICES PROGRAM

Assurance Verification Areas	Status: Complete	Status: In Work	Evidence of Completion	Feb	Mar	Apr
Quality				Y	Y	0
Software / Hardware Problems	☐	☑	The Taurus vehicle is under certification efforts by LS SMA and NASA LSP. Due to outstanding Data Requests for Taurus vendors from previous site visits, all hardware and software fabrication operations are not fully certified.	Y	Y	0
Alerts	☐	☑	No issues	G	G	0
Audits/Inspections/Surveillances	☐	☑	No issues or concerns	G	G	0
Limited Life Items	☐	☑	No issues	G	G	0
Reliability				G	G	0
FMEA/Fishbones/Equivalent	☐	☑	Failure analyses assessments have been initiated along with vehicle certification planning	G	G	0
Reliability Assessments	☐	☑	Reliability assessment for certification is in progress. Design Reliability Report (DRR) from Orbital was received 11/16/07. The revised DRR (based on TIM comments) is expected before 4/18/08.	G	G	0
Safety				G	G	0
Requirements Definitions	☐	☑	ICD & Safety documentation tailoring in work	G	G	0
Range Safety & Mission Flight Rules	☐	☑	In-work (Range Safety)	G	G	0
Licenses/Use Authorizations	☐	☑	In-work	G	G	0
Safety Documentation	☐	☑	Range Safety Identified Potential Noncompliance (Nov.13.2006): Orbital has addressed (5-18-07) the potential non-compliances as well as other general items and is keeping the pace in resolving these important issues.	G	G	0
Non-compliances	☐	☑	No issues identified to date	G	G	0
Contingency Planning	☐	☑	No issues (no planning required at this time)	G	G	0
Mission Assurance				G	G	0
Lessons Learned	☐	☑	No previous NASA Taurus missions - Other KSC LL's will be reviewed/addressed	G	G	0
First Flight/Mission Unique items	☐	☑	Certification Effort in work	G	G	0
Test/Qualification/Certification	☐	☑	Certification Effort in work	G	G	0
Mission Assurance Assessments	☐	☑	No issues	G	G	0

Risk Management	☐	☑	Risk Management System is working properly	G	G	0

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GLORY Comm & Telemetry

Mike Patton and Nathan Wood

	Feb	Mar	Apr
Communications	0	0	0
Voice Comm	0	0	0
Data Comm	0	0	0
Networks	0	0	0
Video Comm	0	0	0
Timing	0	0	0
RF Comm	0	0	0
LSSP Comm Annex	0	0	0

	Feb	Mar	Apr
Telemetry	0	0	0
Decommutation Tables	0	0	0
Data Integrity Test	0	0	0
Software Lockdown	0	0	0
Software Inventory	0	0	0
Console Configuration	0	0	0
Console Checkout	0	0	0